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PORLTAND HARBOR RI/FS
INTERIM DELIVERABLE FOR
HUMAN HEALTH RISK ASSESSMENT:
ROUND 1 TISSUE EXPOSURE POINT CONCENTRATIONS

FINAL

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The Lower Willamette Group

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1.0 Introduction

Exposure point concentrations (EPCs) are used in risk assessment to quantify chemical intakes. The EPC represents the chemical concentration in a given medium that is contacted over the duration of the exposure. This interim deliverable presents the Round 1 tissue EPCs for use in the Baseline Human Health Risk Assessment (HHRA) for the Portland Harbor Superfund Site (Site) and the process used to derive the EPCs. The EPCs presented in this interim deliverable and the process used to derive them are specifically for the HHRA and may not be applicable to other elements of the Portland Harbor Remedial Investigation and Feasibility Study.

The general process to derive EPCs for the HHRA was previously described in the *Programmatic Work Plan, Appendix C: Human Health Risk Assessment Approach* (Integral Consulting, Inc., et al. 2004), which was approved by EPA on 29 June 2004. Additional details on deriving the Round 1 tissue EPCs were developed through discussions with EPA and its partners and were finalized during the 3 June 2004 meeting between the LWG and EPA and its partners. This interim deliverable describes the agreed to process for deriving the Round 1 tissue EPCs.

The EPCs presented in this interim deliverable are based only on the Round 1 tissue data. No historical tissue data are of sufficient quality to include in the EPCs. Sturgeon, adult spring Chinook, and adult Pacific lamprey were collected in the summer of 2003 through a cooperative effort of the Oregon Department of Human Services (ODHS), Agency for Toxic Substances and Disease Registry (ATSDR), Oregon Department of Fish and Wildlife (ODFW), the City of Portland and EPA Region 10. These data were not available at the time of this interim deliverable, so were not included in the EPCs. If these data become available or other tissue data are collected to support the HHRA, the tissue EPCs will be revised, as appropriate, prior to the Baseline HHRA.

2.0 Round 1 Tissue Data

Smallmouth bass, black crappie, common carp, brown bullhead, and crayfish were the resident fish and shellfish species collected and analyzed during Round 1 to support the HHRA. The sampling design was based on the possible home ranges of the target fish and shellfish, so the sampling approach differed based on the species. The composite scheme for each sample was reviewed and approved by EPA in November and December 2002 prior to laboratory analysis.

For crayfish, samples were collected from 24 stations, which were selected based on habitat areas. Crayfish were collected and composited for individual habitat areas due to their limited home ranges. Only whole body composite samples were collected for crayfish. Two replicate composite samples were collected at three of the

24 stations. At each of the remaining stations, a single composite sample was collected.

For smallmouth bass, samples were collected from eight locations, each corresponding to approximately one river mile. Smallmouth bass were collected and composited based on river mile locations due to their small home range relative to the other fish collected during Round 1. Three whole body replicate composite samples were collected at three of the eight river mile locations. At each of the remaining five river mile locations, one whole body composite sample and one fillet composite sample was collected.

For black crappie, carp, and brown bullhead, samples were collected and composited for two fishing zones, each approximately three river miles in length. Three whole body and three fillet replicate composite samples were collected at each of the two fishing zones for carp and brown bullhead. Two whole body and two fillet replicate composite samples were collected within each of the fishing zones for black crappie.

The Round 1 tissue EPCs for the HHRA were derived both for individual sampling locations and for the entire Site for crayfish, smallmouth bass, black crappie, carp, and brown bullhead. EPCs for fish were calculated for both fillet and whole body samples. EPCs were derived for the chemicals detected in the Round 1 fish and shellfish tissue samples.

3.0 Round 1 SCRA Database

All data submitted by the analytical laboratories for analyses conducted on samples collected during Round 1 were entered into the Round 1 Main Database. The Round 1 Site Characterization and Risk Assessment (SCRA) Database was developed from the Round 1 Main Database to address reporting of multiple results for the same constituent in the same sample and to reduce laboratory duplicates and field splits of samples to derive one value for use. The rationale for developing the Round 1 SCRA Database and rules for data reductions are described in the *Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database Technical Memorandum* (Kennedy/Jenks Consultants, et al. 2004). The Round 1 tissue EPCs were calculated using the Round 1 SCRA Database.

4.0 Treatment of Non-Detects in Exposure Point Concentrations

Chemicals that were not detected at concentrations above the detection limit were designated as non-detects. Non-detects may represent concentrations that are zero or may represent concentrations greater than zero, but less than the detection limit. For purposes of calculating EPCs, proxy values were assigned to non-detects in accordance with the following rules, which were previously presented in Appendix C of the Programmatic Work Plan:

1. If a chemical was not detected in any sample for a given species and sample type (i.e., fillet or whole body), it was assumed to not be present, so an EPC was not calculated.
2. If a chemical is detected at least once in samples for a given species and sample type, a concentration equal to one-half the detection limit was used as a proxy for non-detects in calculating the EPC.

The above rules were applied based on the home range of the species evaluated and the dataset that was used to calculate EPCs. Different datasets were used to calculate EPCs for individual sampling locations and for the entire Site. Individual sampling locations are sample stations for crayfish, river miles for smallmouth bass, and fishing zones for black crappie, carp, and brown bullhead. In order to assess whether a chemical was detected for a given dataset, data were pooled for a given species and sample type both for individual sampling locations and for the entire Site.

For individual sampling location EPCs, only data collected at an individual location were evaluated in determining whether a chemical was detected at that location. If a chemical was detected in a sample at a given sampling location, one-half the detection limit was used at the location for replicate samples where the chemical was not detected in calculating the individual location EPC. At other locations where the chemical was not detected in any sample, the chemical was assumed not to be present, so an EPC was not calculated for the chemical at those locations.

For site-wide EPCs, data were pooled for the entire Site and detections were evaluated based on the home range of the given species. For species with limited home ranges (i.e., crayfish and smallmouth bass), a detection at one station or river mile does not indicate that the chemical is reasonably likely to be present at another station or river mile. Therefore, if a chemical was not detected at a given sampling location for crayfish or smallmouth bass, the chemical was assumed not to be present at that location and zero was used for that location in calculating the site-wide EPC. For species with broader home ranges (i.e., carp, brown bullhead, and black crappie), it was assumed that a chemical could be present at all locations, if it was detected within the Site. If a chemical was detected in at least one sample within the Site for a given species and sample type, one-half the detection limit was used for all non-detects in calculating the site-wide EPC for that chemical in carp, brown bullhead, or black crappie.

5.0 Summed Concentrations

Some toxicity values are based on exposure to chemical mixtures that are congeners, isomers, or closely related degradation products of a parent compound and not to individual chemicals. As a result, risks will be evaluated in the HHRA for the combined exposure to the chemicals and not on an individual chemical basis. The concentrations of the individual isomers or congeners that comprise the mixtures were summed to calculate the EPCs for the mixtures. EPCs were derived only for the

summed concentrations and not for the individual chemicals that comprise the mixtures.

In calculating EPCs for mixtures, the summed concentration was calculated first on an individual sample basis. The EPCs were then derived using the summed concentrations.

The following rules were used to calculate the summed concentrations for a sample:

- If an individual chemical was detected in the sample, the detected concentration was used for that chemical in the sum.
- If an individual chemical was not detected in the sample but was determined to potentially be present using the rules for non-detects, one-half the detection limit was used for that chemical in the sum.
- If an individual chemical was not detected in the sample and was determined not to be present using the rules for non-detects, zero was used for that chemical in the sum.

Summed concentrations were calculated for the following chemicals:

- Total dichlorodiphenyldichloroethane (DDD). Total DDD was calculated by summing 2,4'-DDD and 4,4'-DDD.
- Total dichlorodiphenyldichloroethylene (DDE). Total DDE was calculated by summing 2,4'-DDE and 4,4'-DDE.
- Total dichlorodiphenyltrichloroethane (DDT). Total DDT was calculated by summing 2,4'-DDT and 4,4'-DDT.
- Total chlordane. Total chlordane was calculated by summing alpha-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor, and oxychlordane.
- Total endosulfan. Total endosulfan was calculated by summing alpha-endosulfan, beta-endosulfan and endosulfan sulfate.
- Total polychlorinated biphenyls (PCBs). Total PCBs were calculated for both Aroclors and congeners by summing the individual Aroclors or congeners.
- Total coplanar PCBs. Total coplanar PCBs were calculated by summing the individual coplanar congener concentrations for those congeners that have toxic equivalent factors (TEFs) relating toxicity to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD).

- Adjusted total PCBs. Adjusted total PCBs were calculated by subtracting the total coplanar PCB concentration from the total PCB congener concentration.
- Total dioxin toxic equivalent (TEQ). Total dioxin TEQ was calculated by multiplying dioxin and furan congeners by their TEFs and summing the resulting concentrations. The World Health Organization (WHO) TEFs, which are shown in Table 1, were used to calculate the total dioxin TEQ.
- Total PCB TEQ. Total PCB TEQ was calculated by multiplying coplanar PCB congeners by their TEFs and summing the resulting concentrations. The WHO TEFs, which are shown in Table 1, were used to calculate the total PCB TEQ.
- Total TEQ. The total TEQ was calculated by summing the total dioxin TEQ and the total PCB TEQ.

After summing the concentrations on an individual sample basis, EPCs for the above summed concentrations were derived using the same process that was used for other chemicals, as described below.

6.0 Derivation of Exposure Point Concentrations

EPCs for tissue were derived both for individual sampling locations and for the entire Site. Due to the different sampling approaches, EPCs were derived by station for crayfish, by river mile for smallmouth bass, and by fishing zone for carp, black crappie, and brown bullhead. Site-wide EPCs were also calculated for each species.

Arithmetic mean and maximum concentrations were both identified as EPCs to address potential variation in tissue concentrations, if multiple results were available. In addition, where data for at least five samples were available, the 95 percent upper confidence limit (UCL) on the mean concentrations were calculated for use as EPCs.

Arsenic concentrations reported for Round 1 tissue samples represent total arsenic concentrations; however, risks from exposure to inorganic arsenic will be evaluated in the HHRA. In tissue, inorganic arsenic only represents a fraction of the total arsenic. An assumption that 10 percent of total arsenic is inorganic arsenic was used to estimate the inorganic arsenic EPCs. As described in Appendix C of the Programmatic Work Plan, the assumption of 10 percent inorganic arsenic is expected to provide a health protective estimate. The total arsenic EPCs were multiplied by a factor of 0.1 (i.e., 10 percent) to calculate the inorganic arsenic EPCs.

6.1 STATION EXPOSURE POINT CONCENTRATIONS

EPCs were derived for crayfish for each sample station. The station EPCs for crayfish are presented in Table 2.

Three of the 24 crayfish sample stations had two replicate results. At those stations, the arithmetic mean concentrations for the two replicate results were calculated using the rules for non-detects. The arithmetic mean and maximum concentrations for the two replicate results were identified as the EPCs for that station. If a chemical was not detected in either sample at a station, EPCs were not identified for that chemical at that station.

At the remaining sample stations, a single composite sample was collected, in accordance with the sampling design. The results for that sample were identified as the EPCs for that station. If a chemical was not detected at a station, an EPC was not identified for that chemical at that station.

6.2 RIVER MILE EXPOSURE POINT CONCENTRATIONS

EPCs were derived for smallmouth bass for each river mile. The river mile EPCs for smallmouth bass are presented in Table 3.

Three of the eight river miles had three replicate results for whole body samples. At those river miles, the arithmetic mean concentrations for the three replicate results were calculated using the rules for non-detects. The arithmetic mean and maximum concentrations for the three replicate results were identified as the EPCs for that river mile. If a chemical was not detected in any replicate sample collected in an individual river mile, EPCs were not identified for that chemical at that river mile.

At the remaining river miles, a single composite whole body sample and a single composite fillet sample were collected, in accordance with the sampling design. The results for either the whole body or fillet sample were identified as the whole body or fillet EPCs for that river mile. If a chemical was not detected in a river mile for a given sample type (i.e., whole body or fillet), an EPC was not identified for that chemical at that river mile for that sample type.

6.3 FISHING ZONE EXPOSURE POINT CONCENTRATIONS

EPCs were derived for carp, brown bullhead, and black crappie for each fishing zone. The fishing zone EPCs for carp, brown bullhead, and black crappie are presented in Tables 4, 5, and 6, respectively.

For carp and brown bullhead, three replicate whole body composite samples and three replicate fillet composite samples were collected at each of the two fishing zones. For black crappie, two replicate whole body samples and two replicate fillet samples were collected at each of the fishing zones. The arithmetic mean concentrations for the replicate results were calculated using the rules for non-detects. The arithmetic mean and maximum concentrations for the replicate results were identified as the EPCs for either whole body or fillet samples for that fishing zone. If a chemical was

not detected in any sample in a fishing zone for a given sample type, EPCs were not identified for that chemical in that fishing zone for that sample type.

6.4 SITE-WIDE EXPOSURE POINT CONCENTRATIONS

Site-wide EPCs were derived for crayfish, smallmouth bass, carp, brown bullhead, and black crappie and are presented in Tables 7, 8, 9, 10, and 11, respectively. Due to differences in home ranges, site-wide EPCs were derived differently for crayfish and smallmouth bass than for carp, brown bullhead, and black crappie.

6.4.1 Crayfish and Smallmouth Bass

Because crayfish and smallmouth bass have limited home ranges, the results for each station or river mile were considered representative of only that station or river mile. In calculating the site-wide EPCs for these species, the EPCs were first derived for the individual stations or river miles. The individual EPCs were then combined to derive the site-wide EPCs.

The arithmetic mean concentrations were calculated for the stations or river miles with replicate results, as described above. The results from the stations or river miles with only one sample were then pooled with the arithmetic mean concentrations from the stations or river miles with replicate samples to calculate the arithmetic mean for the entire Site. If a chemical was not detected in a given station or river mile, zero was used for that location in calculating the site-wide average. If a chemical was not detected at any station or river mile within the Site for a given species and sample type, an EPC was not derived for that chemical in that species and sample type.

Maximum concentrations for each station or river mile were pooled into one dataset. The maximum concentration from that dataset was then identified as the maximum concentration for the entire Site. The arithmetic mean and maximum concentrations for the entire Site were identified as site-wide EPCs.

Because site-wide data were available for at least five crayfish, whole body smallmouth bass, and fillet smallmouth bass samples, 95% UCLs were calculated for each dataset following EPA guidance (EPA 2002). ProUCL version 3.0 (EPA 2004) was used to test each dataset for normal, lognormal, or gamma distributions and to calculate the 95% UCLs. Data were tested first for normality, then for gamma distributions, and finally for lognormal distributions, as recommended by ProUCL guidance (EPA 2004). The 95% UCLs were calculated using the method recommended by ProUCL guidance (EPA 2004) for the data distribution, sample size, and skewness. The method used to calculate the 95% UCL and the data distribution is indicated in the EPC tables.

6.4.2 Carp, Brown Bullhead, and Black Crappie

Carp, brown bullhead, and black crappie have home ranges that could potentially span the entire Site. As a result, data collected in either fishing zone were considered

representative of the entire Site. In calculating the site-wide EPCs for these species, the data for the entire Site were pooled as a single dataset.

The arithmetic mean concentrations were calculated using the results for each individual sample collected within the Site for a given species and sample type. If a chemical was detected at least once within the Site for a given species and sample type, one-half the detection limit was used for all non-detects for that species and sample type in calculating the site-wide average for that chemical. If a chemical was not detected in any sample within the Site for a given species and sample type, an EPC was not derived for that chemical.

The maximum concentration for the individual sample results collected within the Site for a given species and sample type was identified as the maximum concentration for the entire Site. The arithmetic mean and maximum concentrations for the entire Site were identified as site-wide EPCs.

Site-wide data were available for at least five whole body carp, fillet carp, whole body brown bullhead, and fillet brown bullhead samples, so 95% UCLs were calculated for each dataset following EPA guidance (EPA 2002). Because data for at least five samples were not available for either whole body or fillet tissue, 95% UCLs were not calculated for black crappie. ProUCL version 3.0 (EPA 2004) was used to test the carp and brown bullhead datasets for normal, lognormal, or gamma distributions and to calculate the 95% UCLs. Data were tested first for normality, then for gamma distributions, and finally for lognormal distributions, as recommended in the ProUCL guidance (EPA 2004). The 95% UCLs were calculated using the method recommended in the ProUCL guidance (EPA 2004) for the data distribution, sample size, and skewness. The method used to calculate the 95% UCL and the data distribution are indicated in the EPC tables.

7.0 Summary

The Round 1 tissue EPCs proposed for use in the Baseline HHRA are presented in Tables 2 through 11. These EPCs were derived for target fish and shellfish species that will be evaluated in the HHRA for risk from fish consumption. EPCs were derived both for individual sampling locations and the entire Site. If additional tissue data are collected to support the HHRA prior to the Baseline HHRA, these EPCs will be revised, as appropriate.

8.0 References

EPA. 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response. OSWER 9285.6-10. December 2002.

EPA. 2004. ProUCL Version 3.0, User Guide. Office of Research and Development. April 2004.

Integral Consulting, Inc., Windward Environmental, LLC, Kennedy/Jenks Consultants, Anchor Environmental, LLC, Groundwater Solutions, Inc. 2004. Programmatic Work Plan. Prepared for The Lower Willamette Group. Integral Consulting, Inc., Mercer Island, WA; Windward Environmental, LLC, Seattle, WA; Kennedy/Jenks Consultants, Portland, OR; Anchor Environmental, LLC, Seattle, WA; Groundwater Solutions, Inc., Portland, OR.

Kennedy/Jenks Consultants, Integral Consulting, Inc., Windward Environmental, LLC. 2004. Guidelines for Data Reporting, Data Averaging, and Treatment of Non-Detected Values for the Round 1 Database. Technical Memorandum. Prepared for The Lower Willamette Group. Kennedy/Jenks Consultants, Portland, OR; Integral Consulting, Inc., Mercer Island, WA; Windward Environmental, LLC, Seattle, WA.

Table 1: Toxic Equivalency Factors

Chemical Class	Compound	TEF ⁽¹⁾
Dioxins	2,3,7,8-TCDD	1
	1,2,3,7,8-PeCDD	1
	1,2,3,4,7,8-HxCDD	0.1
	1,2,3,7,8,9-HxCDD	0.1
	1,2,3,6,7,8-HxCDD	0.1
	1,2,3,4,6,7,8-HpCDD	0.01
	OCDD	0.0001
Furans	2,3,7,8-TCDF	0.1
	1,2,3,7,8-PeCDF	0.05
	2,3,4,7,8-PeCDF	0.5
	1,2,3,4,7,8-HxCDF	0.1
	1,2,3,7,8,9-HxCDF	0.1
	1,2,3,6,7,8-HxCDF	0.1
	2,3,4,6,7,8-HxCDF	0.1
	1,2,3,4,6,7,8-HpCDF	0.01
	1,2,3,4,7,8,9-HpCDF	0.01
	OCDF	0.0001
Coplanar PCBs	3,3',4,4'-TCB (77)	0.0001
	3,4,4',5-TCB (81)	0.0001
	2,3,3',4,4'-PeCB (105)	0.0001
	2,3,4,4',5-PeCB (114)	0.0005
	2,3',4,4',5-PeCB (118)	0.0001
	2',3,4,4',5-PeCB (123)	0.0001
	3,3',4,4',5-PeCB (126)	0.1
	2,3,3',4,4',5'-HxCB (156)	0.0005
	2,3,3',4,4',5-HxCB (157)	0.0005
	2,3',4,4',5,5'-HxCB (167)	0.00001
	3,3',4,4',5,5'-HxCB (169)	0.01
	2,3,3',4,4',5,5'-HpCB (189)	0.0001
	2,2',3,3',4,4',5-HpCB (170)	--
	2,2',3,4,4',5,5'-HpCB (180)	--

(1) World Health Organization 1997 TEF.

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
River Mile: 2, Station: 1, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	101	101
Metal	Antimony	mg/kg	0	1	0.007	0.007
Metal	Arsenic, total	mg/kg	0	1	0.37	0.37
Metal	Arsenic, inorganic	mg/kg	0	1	0.037	0.037
Metal	Cadmium	mg/kg	0	1	0.028	0.028
Metal	Chromium	mg/kg	0	1	0.9	0.9
Metal	Copper	mg/kg	0	1	12.5	12.5
Metal	Lead	mg/kg	0	1	0.059	0.059
Metal	Manganese	mg/kg	0	1	154	154
Metal	Mercury	mg/kg	0	1	0.024	0.024
Metal	Nickel	mg/kg	0	1	0.54	0.54
Metal	Silver	mg/kg	0	1	0.027	0.027
Metal	Thallium	mg/kg	0	1	0.008	0.008
Metal	Zinc	mg/kg	0	1	16.6	16.6
PCB Aroclor	Total Aroclors	ug/kg			21	21
PCB Congener	Total Congeners	ug/kg			60.7	60.7
PCB Congener	Total Dioxin-like Congeners	ug/kg			15.1	15.1
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			45.7	45.7
Total Dioxin TEQ		ng/kg			0.455	0.455
Total PCB TEQ		ng/kg			4.55	4.55
Total TEQ		ng/kg			5.01	5.01
DDE	Total DDE	ug/kg			2.9	2.9
DDT	Total DDT	ug/kg			7.6	7.6
Chlordanes	Total Chlordane	ug/kg			1.1	1.1
River Mile: 2, Station: 15, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	89.7	89.7
Metal	Antimony	mg/kg	0	1	0.009	0.009
Metal	Arsenic, total	mg/kg	0	1	0.4	0.4
Metal	Arsenic, inorganic	mg/kg	0	1	0.04	0.04
Metal	Cadmium	mg/kg	0	1	0.017	0.017
Metal	Chromium	mg/kg	0	1	0.7	0.7
Metal	Copper	mg/kg	0	1	11.2	11.2
Metal	Lead	mg/kg	0	1	0.078	0.078
Metal	Manganese	mg/kg	0	1	183	183
Metal	Mercury	mg/kg	0	1	0.023	0.023
Metal	Nickel	mg/kg	0	1	0.47	0.47
Metal	Silver	mg/kg	0	1	0.026	0.026
Metal	Thallium	mg/kg	0	1	0.007	0.007
Metal	Zinc	mg/kg	0	1	15.9	15.9
Pesticide	Endrin	ug/kg	0	1	1.8	1.8
PCB Aroclor	Total Aroclors	ug/kg			28	28
DDE	Total DDE	ug/kg			4.1	4.1
DDT	Total DDT	ug/kg			9.5	9.5
Chlordanes	Total Chlordane	ug/kg			1.3	1.3
River Mile: 3, Station: 1, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	102	102
Metal	Antimony	mg/kg	0	1	0.007	0.007
Metal	Arsenic, total	mg/kg	0	1	0.35	0.35

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Arsenic, inorganic	mg/kg	0	1	0.035	0.035
Metal	Cadmium	mg/kg	0	1	0.016	0.016
Metal	Chromium	mg/kg	0	1	0.4	0.4
Metal	Copper	mg/kg	0	1	12.3	12.3
Metal	Lead	mg/kg	0	1	0.069	0.069
Metal	Manganese	mg/kg	0	1	137	137
Metal	Mercury	mg/kg	0	1	0.024	0.024
Metal	Nickel	mg/kg	0	1	0.3	0.3
Metal	Silver	mg/kg	0	1	0.029	0.029
Metal	Thallium	mg/kg	0	1	0.005	0.005
Metal	Zinc	mg/kg	0	1	17.6	17.6
DDE	Total DDE	ug/kg			4.8	4.8
DDT	Total DDT	ug/kg			2.2	2.2
Endosulfan	Total Endosulfan	ug/kg			1	1
River Mile: 3, Station: 2, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	93.3	93.3
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.41	0.41
Metal	Arsenic, inorganic	mg/kg	0	1	0.041	0.041
Metal	Cadmium	mg/kg	0	1	0.018	0.018
Metal	Chromium	mg/kg	0	1	0.4	0.4
Metal	Copper	mg/kg	0	1	14.7	14.7
Metal	Lead	mg/kg	0	1	0.044	0.044
Metal	Manganese	mg/kg	0	1	156	156
Metal	Mercury	mg/kg	0	1	0.027	0.027
Metal	Nickel	mg/kg	0	1	0.36	0.36
Metal	Silver	mg/kg	0	1	0.029	0.029
Metal	Thallium	mg/kg	0	1	0.005	0.005
Metal	Zinc	mg/kg	0	1	17.5	17.5
Pesticide	Endrin	ug/kg	0	1	1.3	1.3
DDE	Total DDE	ug/kg			3.8	3.8
DDT	Total DDT	ug/kg			2.1	2.1
Endosulfan	Total Endosulfan	ug/kg			1.4	1.4
River Mile: 3, Station: 3, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	151	151
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.38	0.38
Metal	Arsenic, inorganic	mg/kg	0	1	0.038	0.038
Metal	Cadmium	mg/kg	0	1	0.029	0.029
Metal	Chromium	mg/kg	0	1	0.5	0.5
Metal	Copper	mg/kg	0	1	17	17
Metal	Lead	mg/kg	0	1	0.088	0.088
Metal	Manganese	mg/kg	0	1	158	158
Metal	Mercury	mg/kg	0	1	0.029	0.029
Metal	Nickel	mg/kg	0	1	0.42	0.42
Metal	Silver	mg/kg	0	1	0.042	0.042
Metal	Thallium	mg/kg	0	1	0.005	0.005
Metal	Zinc	mg/kg	0	1	19.8	19.8
Pesticide	Endrin	ug/kg	0	1	1.1	1.1

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
PCB Congener	Total Congeners	ug/kg			76.1	76.1
PCB Congener	Total Dioxin-like Congeners	ug/kg			5.98	5.98
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			70.1	70.1
	Total Dioxin TEQ	ng/kg			0.676	0.676
	Total PCB TEQ	ng/kg			1.91	1.91
	Total TEQ	ng/kg			2.59	2.59
DDE	Total DDE	ug/kg			3.5	3.5
DDT	Total DDT	ug/kg			6.9	6.9
Endosulfan	Total Endosulfan	ug/kg			1.1	1.1
River Mile: 3, Station: 4, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	109	109
Metal	Antimony	mg/kg	0	1	0.014	0.014
Metal	Arsenic, total	mg/kg	0	1	0.36	0.36
Metal	Arsenic, inorganic	mg/kg	0	1	0.036	0.036
Metal	Cadmium	mg/kg	0	1	0.02	0.02
Metal	Chromium	mg/kg	0	1	0.6	0.6
Metal	Copper	mg/kg	0	1	15.8	15.8
Metal	Lead	mg/kg	0	1	0.1	0.1
Metal	Manganese	mg/kg	0	1	89.7	89.7
Metal	Mercury	mg/kg	0	1	0.025	0.025
Metal	Nickel	mg/kg	0	1	0.4	0.4
Metal	Silver	mg/kg	0	1	0.046	0.046
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	18.2	18.2
Phenol	4-Methylphenol	ug/kg	0	1	190	190
Phenol	Phenol	ug/kg	0	1	520	520
PCB Congener	Total Congeners	ug/kg			31.5	31.5
PCB Congener	Total Dioxin-like Congeners	ug/kg			4.96	4.96
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			26.6	26.6
	Total Dioxin TEQ	ng/kg			0.707	0.707
	Total PCB TEQ	ng/kg			1.66	1.66
	Total TEQ	ng/kg			2.37	2.37
DDE	Total DDE	ug/kg			3.7	3.7
DDT	Total DDT	ug/kg			5.2	5.2
Endosulfan	Total Endosulfan	ug/kg			3.1	3.1
River Mile: 3, Station: 5, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	66.1	66.1
Metal	Antimony	mg/kg	0	1	0.015	0.015
Metal	Arsenic, total	mg/kg	0	1	0.3	0.3
Metal	Arsenic, inorganic	mg/kg	0	1	0.03	0.03
Metal	Cadmium	mg/kg	0	1	0.03	0.03
Metal	Chromium	mg/kg	0	1	0.3	0.3
Metal	Copper	mg/kg	0	1	11.8	11.8
Metal	Lead	mg/kg	0	1	0.154	0.154
Metal	Manganese	mg/kg	0	1	190	190
Metal	Mercury	mg/kg	0	1	0.022	0.022
Metal	Nickel	mg/kg	0	1	0.3	0.3
Metal	Silver	mg/kg	0	1	0.015	0.015
Metal	Thallium	mg/kg	0	1	0.002	0.002

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Zinc	mg/kg	0	1	14.8	14.8
Pesticide	Endrin	ug/kg	0	1	2.8	2.8
PCB Aroclor	Total Aroclors	ug/kg			280	280
PCB Congener	Total Congeners	ug/kg			207	207
PCB Congener	Total Dioxin-like Congeners	ug/kg			13.8	13.8
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			193	193
Total Dioxin TEQ		ng/kg			0.646	0.646
Total PCB TEQ		ng/kg			4.42	4.42
Total TEQ		ng/kg			5.06	5.06
DDE	Total DDE	ug/kg			3.5	3.5
Chlordanes	Total Chlordane	ug/kg			1	1
Endosulfan	Total Endosulfan	ug/kg			1.6	1.6
River Mile: 3, Station: 32, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	59.4	59.4
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.45	0.45
Metal	Arsenic, inorganic	mg/kg	0	1	0.045	0.045
Metal	Cadmium	mg/kg	0	1	0.012	0.012
Metal	Chromium	mg/kg	0	1	0.5	0.5
Metal	Copper	mg/kg	0	1	13.1	13.1
Metal	Lead	mg/kg	0	1	0.041	0.041
Metal	Manganese	mg/kg	0	1	132	132
Metal	Mercury	mg/kg	0	1	0.028	0.028
Metal	Nickel	mg/kg	0	1	0.38	0.38
Metal	Silver	mg/kg	0	1	0.035	0.035
Metal	Thallium	mg/kg	0	1	0.004	0.004
Metal	Zinc	mg/kg	0	1	17.4	17.4
DDE	Total DDE	ug/kg			3.4	3.4
DDT	Total DDT	ug/kg			3.6	3.6
River Mile: 4, Station: 2, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	86.2	86.2
Metal	Antimony	mg/kg	0	1	0.009	0.009
Metal	Arsenic, total	mg/kg	0	1	0.39	0.39
Metal	Arsenic, inorganic	mg/kg	0	1	0.039	0.039
Metal	Cadmium	mg/kg	0	1	0.022	0.022
Metal	Chromium	mg/kg	0	1	0.2	0.2
Metal	Copper	mg/kg	0	1	15.4	15.4
Metal	Lead	mg/kg	0	1	1.3	1.3
Metal	Manganese	mg/kg	0	1	118	118
Metal	Mercury	mg/kg	0	1	0.035	0.035
Metal	Nickel	mg/kg	0	1	0.275	0.275
Metal	Silver	mg/kg	0	1	0.043	0.043
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	17	17
DDE	Total DDE	ug/kg			4	4
DDT	Total DDT	ug/kg			1.9	1.9
River Mile: 4, Station: 3, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	62.8	62.8
Metal	Antimony	mg/kg	0	1	0.01	0.01

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Arsenic, total	mg/kg	0	1	0.37	0.37
Metal	Arsenic, inorganic	mg/kg	0	1	0.037	0.037
Metal	Cadmium	mg/kg	0	1	0.025	0.025
Metal	Chromium	mg/kg	0	1	0.2	0.2
Metal	Copper	mg/kg	0	1	15.4	15.4
Metal	Lead	mg/kg	0	1	0.229	0.229
Metal	Manganese	mg/kg	0	1	112	112
Metal	Mercury	mg/kg	0	1	0.022	0.022
Metal	Silver	mg/kg	0	1	0.047	0.047
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	17	17
PAH	Fluoranthene	ug/kg	0	1	93	93
DDD	Total DDD	ug/kg			1.2	1.2
DDE	Total DDE	ug/kg			7.2	7.2
DDT	Total DDT	ug/kg			9.5	9.5
Endosulfan	Total Endosulfan	ug/kg			1.6	1.6

River Mile: 4, Station: 4, Organism: Crayfish, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	2	105	131
Metal	Antimony	mg/kg	0	2	0.008	0.01
Metal	Arsenic, total	mg/kg	0	2	0.37	0.39
Metal	Arsenic, inorganic	mg/kg	0	2	0.037	0.039
Metal	Cadmium	mg/kg	0	2	0.013	0.013
Metal	Chromium	mg/kg	0	2	0.3	0.4
Metal	Copper	mg/kg	0	2	11.7	11.9
Metal	Lead	mg/kg	0	2	0.102	0.107
Metal	Manganese	mg/kg	0	2	155	165
Metal	Mercury	mg/kg	0	2	0.031	0.037
Metal	Nickel	mg/kg	0	2	0.305	0.39
Metal	Silver	mg/kg	0	2	0.028	0.032
Metal	Thallium	mg/kg	0	2	0.003	0.003
Metal	Zinc	mg/kg	0	2	14.7	15.7
PAH	Fluoranthene	ug/kg	1	2	78.3	110
PAH	Pyrene	ug/kg	1	2	42.5	60
DDE	Total DDE	ug/kg			4.5	6.9
DDT	Total DDT	ug/kg			1.3	2.1
Chlordanes	Total Chlordane	ug/kg			1.6	2.7

River Mile: 5, Station: 1, Organism: Crayfish, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	1	88.9	88.9
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.35	0.35
Metal	Arsenic, inorganic	mg/kg	0	1	0.035	0.035
Metal	Cadmium	mg/kg	0	1	0.009	0.009
Metal	Chromium	mg/kg	0	1	0.4	0.4
Metal	Copper	mg/kg	0	1	13.1	13.1
Metal	Lead	mg/kg	0	1	0.083	0.083
Metal	Manganese	mg/kg	0	1	110	110
Metal	Mercury	mg/kg	0	1	0.031	0.031
Metal	Nickel	mg/kg	0	1	0.29	0.29
Metal	Silver	mg/kg	0	1	0.028	0.028

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	15.9	15.9
DDE	Total DDE	ug/kg			5.2	5.2
DDT	Total DDT	ug/kg			1.7	1.7
Chlordane	Total Chlordane	ug/kg			1.9	1.9
Endosulfan	Total Endosulfan	ug/kg			1.7	1.7
River Mile: 5, Station: 3, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	96.7	96.7
Metal	Antimony	mg/kg	0	1	0.02	0.02
Metal	Arsenic, total	mg/kg	0	1	0.35	0.35
Metal	Arsenic, inorganic	mg/kg	0	1	0.035	0.035
Metal	Cadmium	mg/kg	0	1	0.036	0.036
Metal	Chromium	mg/kg	0	1	0.9	0.9
Metal	Copper	mg/kg	0	1	16.9	16.9
Metal	Lead	mg/kg	0	1	0.11	0.11
Metal	Manganese	mg/kg	0	1	112	112
Metal	Mercury	mg/kg	0	1	0.039	0.039
Metal	Nickel	mg/kg	0	1	0.59	0.59
Metal	Silver	mg/kg	0	1	0.024	0.024
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	18.9	18.9
Pesticide	Endrin	ug/kg	0	1	1.2	1.2
PCB Aroclor	Total Aroclors	ug/kg			27	27
DDE	Total DDE	ug/kg			8	8
Endosulfan	Total Endosulfan	ug/kg			1.3	1.3
River Mile: 6, Station: 1, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	107	107
Metal	Arsenic, total	mg/kg	0	1	0.32	0.32
Metal	Arsenic, inorganic	mg/kg	0	1	0.032	0.032
Metal	Cadmium	mg/kg	0	1	0.011	0.011
Metal	Chromium	mg/kg	0	1	0.9	0.9
Metal	Copper	mg/kg	0	1	14.9	14.9
Metal	Lead	mg/kg	0	1	0.071	0.071
Metal	Manganese	mg/kg	0	1	115	115
Metal	Mercury	mg/kg	0	1	0.041	0.041
Metal	Nickel	mg/kg	0	1	0.51	0.51
Metal	Silver	mg/kg	0	1	0.032	0.032
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	15	15
DDE	Total DDE	ug/kg			4.6	4.6
DDT	Total DDT	ug/kg			1.2	1.2
Endosulfan	Total Endosulfan	ug/kg			2.1	2.1
River Mile: 6, Station: 4, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	2	137	145
Metal	Antimony	mg/kg	0	2	0.006	0.006
Metal	Arsenic, total	mg/kg	0	2	0.365	0.38
Metal	Arsenic, inorganic	mg/kg	0	2	0.0365	0.038
Metal	Cadmium	mg/kg	0	2	0.019	0.02
Metal	Chromium	mg/kg	0	2	0.65	0.8

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Copper	mg/kg	0	2	15.3	16.4
Metal	Lead	mg/kg	0	2	0.085	0.088
Metal	Manganese	mg/kg	0	2	203	213
Metal	Mercury	mg/kg	0	2	0.032	0.034
Metal	Nickel	mg/kg	0	2	0.455	0.5
Metal	Silver	mg/kg	0	2	0.03	0.031
Metal	Thallium	mg/kg	0	2	0.003	0.004
Metal	Zinc	mg/kg	0	2	19.3	20.3
PAH	Benz(a)anthracene	ug/kg	1	2	48.3	80
PAH	Chrysene	ug/kg	1	2	51.8	87
PAH	Fluoranthene	ug/kg	1	2	73.3	130
PAH	Phenanthrene	ug/kg	1	2	56.8	97
PAH	Pyrene	ug/kg	1	2	54	83
PCB Congener	Total Congeners	ug/kg			15.4	16.6
PCB Congener	Total Dioxin-like Congeners	ug/kg			1.99	2.16
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			13.4	14.8
	Total Dioxin TEQ	ng/kg			1.52	1.69
	Total PCB TEQ	ng/kg			0.539	0.59
	Total TEQ	ng/kg			2.06	2.28
DDD	Total DDD	ug/kg			6.25	9.6
DDE	Total DDE	ug/kg			6.05	8.8
DDT	Total DDT	ug/kg			2.35	3.1
River Mile: 6, Station: 31, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	101	101
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.26	0.26
Metal	Arsenic, inorganic	mg/kg	0	1	0.026	0.026
Metal	Cadmium	mg/kg	0	1	0.007	0.007
Metal	Chromium	mg/kg	0	1	0.7	0.7
Metal	Copper	mg/kg	0	1	11.4	11.4
Metal	Lead	mg/kg	0	1	0.077	0.077
Metal	Manganese	mg/kg	0	1	200	200
Metal	Mercury	mg/kg	0	1	0.029	0.029
Metal	Nickel	mg/kg	0	1	0.45	0.45
Metal	Silver	mg/kg	0	1	0.026	0.026
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	16.2	16.2
PCB Congener	Total Congeners	ug/kg			50.7	50.7
PCB Congener	Total Dioxin-like Congeners	ug/kg			1.79	1.79
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			48.9	48.9
	Total Dioxin TEQ	ng/kg			2.16	2.16
	Total PCB TEQ	ng/kg			0.611	0.611
	Total TEQ	ng/kg			2.78	2.78
DDE	Total DDE	ug/kg			4.2	4.2
DDT	Total DDT	ug/kg			3	3
Endosulfan	Total Endosulfan	ug/kg			1.3	1.3
River Mile: 7, Station: 3, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	98.2	98.2
Metal	Arsenic, total	mg/kg	0	1	0.3	0.3

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Arsenic, inorganic	mg/kg	0	1	0.03	0.03
Metal	Cadmium	mg/kg	0	1	0.015	0.015
Metal	Chromium	mg/kg	0	1	0.3	0.3
Metal	Copper	mg/kg	0	1	13.8	13.8
Metal	Lead	mg/kg	0	1	0.091	0.091
Metal	Manganese	mg/kg	0	1	117	117
Metal	Mercury	mg/kg	0	1	0.03	0.03
Metal	Nickel	mg/kg	0	1	0.3	0.3
Metal	Silver	mg/kg	0	1	0.019	0.019
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	16	16
PCB Aroclor	Total Aroclors	ug/kg			39	39
DDD	Total DDD	ug/kg			3.1	3.1
DDE	Total DDE	ug/kg			15	15
DDT	Total DDT	ug/kg			17.5	17.5
River Mile: 7, Station: 4, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	203	203
Metal	Antimony	mg/kg	0	1	0.009	0.009
Metal	Arsenic, total	mg/kg	0	1	0.5	0.5
Metal	Arsenic, inorganic	mg/kg	0	1	0.05	0.05
Metal	Cadmium	mg/kg	0	1	0.016	0.016
Metal	Chromium	mg/kg	0	1	0.9	0.9
Metal	Copper	mg/kg	0	1	17.6	17.6
Metal	Lead	mg/kg	0	1	0.202	0.202
Metal	Manganese	mg/kg	0	1	171	171
Metal	Mercury	mg/kg	0	1	0.036	0.036
Metal	Nickel	mg/kg	0	1	0.55	0.55
Metal	Silver	mg/kg	0	1	0.039	0.039
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	19.1	19.1
DDE	Total DDE	ug/kg			6.4	6.4
DDT	Total DDT	ug/kg			1.5	1.5
Endosulfan	Total Endosulfan	ug/kg			2.2	2.2
River Mile: 7, Station: 6, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	58.7	58.7
Metal	Antimony	mg/kg	0	1	0.006	0.006
Metal	Arsenic, total	mg/kg	0	1	0.32	0.32
Metal	Arsenic, inorganic	mg/kg	0	1	0.032	0.032
Metal	Cadmium	mg/kg	0	1	0.009	0.009
Metal	Chromium	mg/kg	0	1	0.54	0.54
Metal	Copper	mg/kg	0	1	12.8	12.8
Metal	Lead	mg/kg	0	1	0.242	0.242
Metal	Manganese	mg/kg	0	1	130	130
Metal	Mercury	mg/kg	0	1	0.024	0.024
Metal	Nickel	mg/kg	0	1	0.83	0.83
Metal	Silver	mg/kg	0	1	0.032	0.032
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	15.5	15.5
PCB Aroclor	Total Aroclors	ug/kg	8	1	45	45

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
PCB Congener	Total Congeners	ug/kg			27.8	27.8
PCB Congener	Total Dioxin-like Congeners	ug/kg			3.59	3.59
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			24.3	24.3
Total Dioxin TEQ		ng/kg			22.7	22.7
Total PCB TEQ		ng/kg			1.13	1.13
Total TEQ		ng/kg			23.8	23.8
DDD	Total DDD	ug/kg			21.3	21.3
DDE	Total DDE	ug/kg			51	51
DDT	Total DDT	ug/kg			12.6	12.6
River Mile: 8, Station: 1, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	68.4	68.4
Metal	Antimony	mg/kg	0	1	0.007	0.007
Metal	Arsenic, total	mg/kg	0	1	0.35	0.35
Metal	Arsenic, inorganic	mg/kg	0	1	0.035	0.035
Metal	Cadmium	mg/kg	0	1	0.013	0.013
Metal	Chromium	mg/kg	0	1	0.28	0.28
Metal	Copper	mg/kg	0	1	15	15
Metal	Lead	mg/kg	0	1	0.076	0.076
Metal	Manganese	mg/kg	0	1	123	123
Metal	Mercury	mg/kg	0	1	0.022	0.022
Metal	Nickel	mg/kg	0	1	0.28	0.28
Metal	Silver	mg/kg	0	1	0.024	0.024
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	15.2	15.2
Phenol	4-Methylphenol	ug/kg	0	1	33	33
PCB Aroclor	Total Aroclors	ug/kg			59	59
DDE	Total DDE	ug/kg			6.3	6.3
DDT	Total DDT	ug/kg			6.6	6.6
River Mile: 8, Station: 2, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	86.7	86.7
Metal	Antimony	mg/kg	0	1	0.005	0.005
Metal	Arsenic, total	mg/kg	0	1	0.28	0.28
Metal	Arsenic, inorganic	mg/kg	0	1	0.028	0.028
Metal	Cadmium	mg/kg	0	1	0.013	0.013
Metal	Chromium	mg/kg	0	1	0.38	0.38
Metal	Copper	mg/kg	0	1	10.4	10.4
Metal	Lead	mg/kg	0	1	0.104	0.104
Metal	Manganese	mg/kg	0	1	159	159
Metal	Mercury	mg/kg	0	1	0.033	0.033
Metal	Nickel	mg/kg	0	1	0.32	0.32
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	13.9	13.9
PCB Aroclor	Total Aroclors	ug/kg			16	16
DDE	Total DDE	ug/kg			3	3
DDT	Total DDT	ug/kg			2.9	2.9
River Mile: 8, Station: 3, Organism: Crayfish, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	67.1	67.1
Metal	Antimony	mg/kg	0	1	0.005	0.005
Metal	Arsenic, total	mg/kg	0	1	0.28	0.28

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Arsenic, inorganic	mg/kg	0	1	0.028	0.028
Metal	Cadmium	mg/kg	0	1	0.016	0.016
Metal	Chromium	mg/kg	0	1	0.41	0.41
Metal	Copper	mg/kg	0	1	17	17
Metal	Lead	mg/kg	0	1	0.076	0.076
Metal	Manganese	mg/kg	0	1	71.8	71.8
Metal	Mercury	mg/kg	0	1	0.022	0.022
Metal	Nickel	mg/kg	0	1	0.27	0.27
Metal	Silver	mg/kg	0	1	0.022	0.022
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	15.7	15.7
Phenol	Pentachlorophenol	ug/kg	0	1	130	130
PCB Aroclor	Total Aroclors	ug/kg			43	43
PCB Congener	Total Congeners	ug/kg			38.2	38.2
PCB Congener	Total Dioxin-like Congeners	ug/kg			2.88	2.88
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			35.3	35.3
Total Dioxin TEQ		ng/kg			1.05	1.05
Total PCB TEQ		ng/kg			1.07	1.07
Total TEQ		ng/kg			2.12	2.12
DDE	Total DDE	ug/kg			3.4	3.4

River Mile: 9, Station: 1, Organism: Crayfish, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	2	51.4	67.8
Metal	Antimony	mg/kg	0	2	0.006	0.007
Metal	Arsenic, total	mg/kg	0	2	0.295	0.34
Metal	Arsenic, inorganic	mg/kg	0	2	0.0295	0.034
Metal	Cadmium	mg/kg	0	2	0.022	0.023
Metal	Chromium	mg/kg	0	2	0.125	0.16
Metal	Copper	mg/kg	0	2	15.7	17.6
Metal	Lead	mg/kg	0	2	0.104	0.113
Metal	Manganese	mg/kg	0	2	59.9	60.8
Metal	Mercury	mg/kg	0	2	0.022	0.023
Metal	Nickel	mg/kg	0	2	0.2	0.22
Metal	Silver	mg/kg	1	2	0.02	0.031
Metal	Thallium	mg/kg	0	2	0.002	0.002
Metal	Zinc	mg/kg	0	2	15.7	17
PCB Aroclor	Total Aroclors	ug/kg			47.5	49
DDE	Total DDE	ug/kg			1.75	1.9

River Mile: 9, Station: 2, Organism: Crayfish, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	1	66	66
Metal	Antimony	mg/kg	0	1	0.008	0.008
Metal	Arsenic, total	mg/kg	0	1	0.35	0.35
Metal	Arsenic, inorganic	mg/kg	0	1	0.035	0.035
Metal	Cadmium	mg/kg	0	1	0.011	0.011
Metal	Chromium	mg/kg	0	1	0.26	0.26
Metal	Copper	mg/kg	0	1	13.6	13.6
Metal	Lead	mg/kg	0	1	0.098	0.098
Metal	Manganese	mg/kg	0	1	151	151
Metal	Mercury	mg/kg	0	1	0.03	0.03
Metal	Nickel	mg/kg	0	1	0.4	0.4

Table 2: Station Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Silver	mg/kg	0	1	0.035	0.035
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	19	19
PCB Aroclor	Total Aroclors	ug/kg			110	110
PCB Congener	Total Congeners	ug/kg			82.6	82.6
PCB Congener	Total Dioxin-like Congeners	ug/kg			4.23	4.23
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			78.4	78.4
	Total Dioxin TEQ	ng/kg			0.79	0.79
	Total PCB TEQ	ng/kg			1.41	1.41
	Total TEQ	ng/kg			2.20	2.20
DDE	Total DDE	ug/kg			2.5	2.5

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
River Mile: 3, Organism: Smallmouth Bass, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	1	3.4	3.4
Metal	Arsenic, total	mg/kg	0	1	0.28	0.28
Metal	Arsenic, inorganic	mg/kg	0	1	0.028	0.028
Metal	Copper	mg/kg	0	1	0.935	0.935
Metal	Manganese	mg/kg	0	1	0.087	0.087
Metal	Mercury	mg/kg	0	1	0.129	0.129
Metal	Nickel	mg/kg	0	1	0.124	0.124
Metal	Thallium	mg/kg	0	1	0.01	0.01
Metal	Zinc	mg/kg	0	1	8	8
Pesticide	beta-Hexachlorocyclohexane	ug/kg	0	1	4.5	4.5
Pesticide	Dieldrin	ug/kg	0	1	3.3	3.3
Pesticide	Endrin aldehyde	ug/kg	0	1	2	2
PCB Aroclor	Total Aroclors	ug/kg			60	60
DDD	Total DDD	ug/kg			4.1	4.1
DDE	Total DDE	ug/kg			25	25
DDT	Total DDT	ug/kg			12.9	12.9
Chlordanes	Total Chlordane	ug/kg			4.1	4.1
River Mile: 3, Organism: Smallmouth Bass, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	2.12	2.12
Metal	Antimony	mg/kg	0	1	0.001	0.001
Metal	Arsenic, total	mg/kg	0	1	0.39	0.39
Metal	Arsenic, inorganic	mg/kg	0	1	0.039	0.039
Metal	Cadmium	mg/kg	0	1	0.008	0.008
Metal	Chromium	mg/kg	0	1	0.3	0.3
Metal	Copper	mg/kg	0	1	0.375	0.375
Metal	Lead	mg/kg	0	1	0.006	0.006
Metal	Manganese	mg/kg	0	1	1.06	1.06
Metal	Mercury	mg/kg	0	1	0.096	0.096
Metal	Nickel	mg/kg	0	1	0.08	0.08
Metal	Thallium	mg/kg	0	1	0.009	0.009
Metal	Zinc	mg/kg	0	1	16.3	16.3
Phtalate	Di-n-octyl phthalate	ug/kg	0	1	1,100	1,100
PCB Aroclor	Total Aroclors	ug/kg			780	780
PCB Congener	Total Congeners	ug/kg			935	935
PCB Congener	Total Dioxin-like Congeners	ug/kg			82.8	82.8
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			852	852
Total Dioxin TEQ		ng/kg			1.90	1.90
Total PCB TEQ		ng/kg			21.2	21.2
Total TEQ		ng/kg			23.1	23.1
DDD	Total DDD	ug/kg			30.5	30.5
DDE	Total DDE	ug/kg			145	145
DDT	Total DDT	ug/kg			15	15
River Mile: 4, Organism: Smallmouth Bass, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	3	6.03	11
Metal	Arsenic, total	mg/kg	0	3	0.323	0.34
Metal	Arsenic, inorganic	mg/kg	0	3	0.0323	0.034
Metal	Cadmium	mg/kg	0	3	0.005	0.008
Metal	Chromium	mg/kg	0	3	0.74	0.98

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Copper	mg/kg	0	3	0.458	0.61
Metal	Lead	mg/kg	0	3	0.022	0.054
Metal	Manganese	mg/kg	0	3	0.912	0.986
Metal	Mercury	mg/kg	0	3	0.084	0.114
Metal	Nickel	mg/kg	0	3	0.15	0.2
Metal	Thallium	mg/kg	0	3	0.006	0.008
Metal	Zinc	mg/kg	0	3	14.2	15.2
PAH	Acenaphthene	ug/kg	2	3	22.2	36
PAH	Fluoranthene	ug/kg	2	3	22.2	36
PAH	Pyrene	ug/kg	2	3	23.2	39
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	1	3	39,782	87,000
Phthalate	Di-n-octyl phthalate	ug/kg	1	3	903	2,100
PCB Aroclor	Total Aroclors	ug/kg		780	1,280	
PCB Congener	Total Congeners	ug/kg		629	918	
PCB Congener	Total Dioxin-like Congeners	ug/kg		55.6	83.8	
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg		573	835	
	Total Dioxin TEQ	ng/kg		2.72	3.66	
	Total PCB TEQ	ng/kg		14.6	21.2	
	Total TEQ	ng/kg		17.3	23.6	
DDD	Total DDD	ug/kg		42	56.6	
DDE	Total DDE	ug/kg		153	220	
DDT	Total DDT	ug/kg		11.1	27	

River Mile: 5, Organism: Smallmouth Bass, Tissue: Fillet

Metal	Aluminum	mg/kg	0	1	3.83	3.83
Metal	Arsenic, total	mg/kg	0	1	0.2	0.2
Metal	Arsenic, inorganic	mg/kg	0	1	0.02	0.02
Metal	Copper	mg/kg	0	1	1.12	1.12
Metal	Lead	mg/kg	0	1	0.011	0.011
Metal	Manganese	mg/kg	0	1	0.076	0.076
Metal	Mercury	mg/kg	0	1	0.087	0.087
Metal	Nickel	mg/kg	0	1	0.224	0.224
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	10.9	10.9
Pesticide	Endrin aldehyde	ug/kg	0	1	1.5	1.5
PCB Aroclor	Total Aroclors	ug/kg		46	46	
DDD	Total DDD	ug/kg		4.2	4.2	
DDE	Total DDE	ug/kg		14	14	
DDT	Total DDT	ug/kg		9.5	9.5	

River Mile: 5, Organism: Smallmouth Bass, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	1	2.71	2.71
Metal	Arsenic, total	mg/kg	0	1	0.3	0.3
Metal	Arsenic, inorganic	mg/kg	0	1	0.03	0.03
Metal	Cadmium	mg/kg	0	1	0.008	0.008
Metal	Chromium	mg/kg	0	1	0.44	0.44
Metal	Copper	mg/kg	0	1	0.481	0.481
Metal	Lead	mg/kg	0	1	0.006	0.006
Metal	Manganese	mg/kg	0	1	1.37	1.37
Metal	Mercury	mg/kg	0	1	0.078	0.078
Metal	Nickel	mg/kg	0	1	0.07	0.07

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Thallium	mg/kg	0	1	0.004	0.004
Metal	Zinc	mg/kg	0	1	14.1	14.1
PAH	Fluorene	ug/kg	0	1	31	31
PCB Aroclor	Total Aroclors	ug/kg			390	390
PCB Congener	Total Congeners	ug/kg			417	417
PCB Congener	Total Dioxin-like Congeners	ug/kg			39.1	39.1
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			378	378
Total Dioxin TEQ		ng/kg			2.42	2.42
Total PCB TEQ		ng/kg			10.5	10.5
Total TEQ		ng/kg			12.9	12.9
DDD	Total DDD	ug/kg			35	35
DDE	Total DDE	ug/kg			108	108
DDT	Total DDT	ug/kg			35	35
River Mile: 6, Organism: Smallmouth Bass, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	1	7.15	7.15
Metal	Arsenic, total	mg/kg	0	1	0.2	0.2
Metal	Arsenic, inorganic	mg/kg	0	1	0.02	0.02
Metal	Cadmium	mg/kg	0	1	0.001	0.001
Metal	Copper	mg/kg	0	1	0.248	0.248
Metal	Manganese	mg/kg	0	1	0.094	0.094
Metal	Mercury	mg/kg	0	1	0.073	0.073
Metal	Nickel	mg/kg	0	1	0.008	0.008
Metal	Thallium	mg/kg	0	1	0.004	0.004
Metal	Zinc	mg/kg	0	1	8.38	8.38
PCB Aroclor	Total Aroclors	ug/kg			39	39
DDD	Total DDD	ug/kg			6.4	6.4
DDE	Total DDE	ug/kg			12	12
DDT	Total DDT	ug/kg			7.6	7.6
Chlordanes	Total Chlordane	ug/kg			1.8	1.8
River Mile: 6, Organism: Smallmouth Bass, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	5.55	5.55
Metal	Antimony	mg/kg	0	1	0.001	0.001
Metal	Arsenic, total	mg/kg	0	1	0.21	0.21
Metal	Arsenic, inorganic	mg/kg	0	1	0.021	0.021
Metal	Cadmium	mg/kg	0	1	0.024	0.024
Metal	Copper	mg/kg	0	1	0.809	0.809
Metal	Lead	mg/kg	0	1	0.011	0.011
Metal	Manganese	mg/kg	0	1	0.445	0.445
Metal	Mercury	mg/kg	0	1	0.106	0.106
Metal	Nickel	mg/kg	0	1	0.16	0.16
Metal	Thallium	mg/kg	0	1	0.002	0.002
Metal	Zinc	mg/kg	0	1	16	16
PCB Aroclor	Total Aroclors	ug/kg			252	252
PCB Congener	Total Congeners	ug/kg			344	344
PCB Congener	Total Dioxin-like Congeners	ug/kg			23.7	23.7
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			321	321
Total Dioxin TEQ		ng/kg			1.45	1.45
Total PCB TEQ		ng/kg			7.92	7.92
Total TEQ		ng/kg			9.37	9.37

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
DDD	Total DDD	ug/kg		19	19	
DDE	Total DDE	ug/kg		105	105	
DDT	Total DDT	ug/kg		17	17	

River Mile: 7, Organism: Smallmouth Bass, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	3	5.27	6.14
Metal	Arsenic, total	mg/kg	0	3	0.252	0.29
Metal	Arsenic, inorganic	mg/kg	0	3	0.0252	0.029
Metal	Cadmium	mg/kg	2	3	0.001	0.002
Metal	Chromium	mg/kg	0	3	0.475	0.66
Metal	Copper	mg/kg	0	3	0.622	0.953
Metal	Lead	mg/kg	0	3	0.015	0.034
Metal	Manganese	mg/kg	0	3	1.47	2.05
Metal	Mercury	mg/kg	0	3	0.088	0.1
Metal	Nickel	mg/kg	2	3	0.052	0.13
Metal	Selenium	mg/kg	1	3	0.283	0.4
Metal	Thallium	mg/kg	0	3	0.004	0.004
Metal	Zinc	mg/kg	0	3	15.0	16
PAH	2-Methylnaphthalene	ug/kg	0	3	49.3	59
PAH	Acenaphthene	ug/kg	1	3	63.3	95
PAH	Fluorene	ug/kg	1	3	43.5	69
PAH	Naphthalene	ug/kg	1	3	51.2	86
PAH	Phenanthrene	ug/kg	1	3	48.8	85
SVOC	Dibenzofuran	ug/kg	1	3	37.8	52
PCB Aroclor	Total Aroclors	ug/kg			460.5	780
PCB Congener	Total Congeners	ug/kg			527	549
PCB Congener	Total Dioxin-like Congeners	ug/kg			34.7	37.7
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			493	515
Total Dioxin TEQ		ng/kg			8.60	10.4
Total PCB TEQ		ng/kg			9.74	10.6
Total TEQ		ng/kg			18.3	21.0
DDD	Total DDD	ug/kg			89.8	139
DDE	Total DDE	ug/kg			177	190
DDT	Total DDT	ug/kg			104	160
Chlordanes	Total Chlordane	ug/kg			4.33	5.6

River Mile: 8 (Swan Island Lagoon), Organism: Smallmouth Bass, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	3	6.36	7.67
Metal	Arsenic, total	mg/kg	0	3	0.183	0.2
Metal	Arsenic, inorganic	mg/kg	0	3	0.0183	0.02
Metal	Cadmium	mg/kg	0	3	0.005	0.009
Metal	Chromium	mg/kg	1	3	0.738	1.14
Metal	Copper	mg/kg	0	3	0.823	0.952
Metal	Lead	mg/kg	0	3	0.148	0.303
Metal	Manganese	mg/kg	0	3	1.30	1.84
Metal	Mercury	mg/kg	0	3	0.06	0.076
Metal	Thallium	mg/kg	0	3	0.003	0.003
Metal	Zinc	mg/kg	0	3	14.2	14.5
PAH	2-Methylnaphthalene	ug/kg	2	3	25.7	45
PAH	Acenaphthene	ug/kg	2	3	23.8	40
PCB Aroclor	Total Aroclors	ug/kg			2,933	4,500

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
PCB Congener	Total Congeners	ug/kg			3,025	4,529
PCB Congener	Total Dioxin-like Congeners	ug/kg			84.8	121
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			2,941	4,407
	Total Dioxin TEQ	ng/kg			3.67	4.20
	Total PCB TEQ	ng/kg			24.7	33.9
	Total TEQ	ng/kg			28.4	38.1
DDD	Total DDD	ug/kg			16.2	25.5
DDE	Total DDE	ug/kg			75.7	92.5
DDT	Total DDT	ug/kg			4.53	7.3
Endosulfan	Total Endosulfan	ug/kg			7.8	10
River Mile: 8, Organism: Smallmouth Bass, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	1	3.52	3.52
Metal	Arsenic, total	mg/kg	0	1	0.18	0.18
Metal	Arsenic, inorganic	mg/kg	0	1	0.018	0.018
Metal	Cadmium	mg/kg	0	1	0.001	0.001
Metal	Copper	mg/kg	0	1	0.187	0.187
Metal	Manganese	mg/kg	0	1	0.084	0.084
Metal	Mercury	mg/kg	0	1	0.113	0.113
Metal	Nickel	mg/kg	0	1	0.004	0.004
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	8.67	8.67
Pesticide	Dieldrin	ug/kg	0	1	1.4	1.4
PCB Aroclor	Total Aroclors	ug/kg			93	93
DDD	Total DDD	ug/kg			2.7	2.7
DDE	Total DDE	ug/kg			16	16
DDT	Total DDT	ug/kg			15.2	15.2
Chlordanes	Total Chlordane	ug/kg			3	3
River Mile: 8, Organism: Smallmouth Bass, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	4.78	4.78
Metal	Arsenic, total	mg/kg	0	1	0.25	0.25
Metal	Arsenic, inorganic	mg/kg	0	1	0.025	0.025
Metal	Chromium	mg/kg	0	1	0.24	0.24
Metal	Copper	mg/kg	0	1	0.464	0.464
Metal	Lead	mg/kg	0	1	0.005	0.005
Metal	Manganese	mg/kg	0	1	0.897	0.897
Metal	Mercury	mg/kg	0	1	0.105	0.105
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	14.9	14.9
Pesticide	Dieldrin	ug/kg	0	1	7.3	7.3
PCB Aroclor	Total Aroclors	ug/kg			880	880
PCB Congener	Total Congeners	ug/kg			663	663
PCB Congener	Total Dioxin-like Congeners	ug/kg			41.4	41.4
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			621	621
	Total Dioxin TEQ	ng/kg			2.96	2.96
	Total PCB TEQ	ng/kg			12.2	12.2
	Total TEQ	ng/kg			15.2	15.2
DDD	Total DDD	ug/kg			25	25
DDE	Total DDE	ug/kg			128	128
DDT	Total DDT	ug/kg			26	26

Table 3: River Mile Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
River Mile: 9, Organism: Smallmouth Bass, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	1	2.54	2.54
Metal	Arsenic, total	mg/kg	0	1	0.19	0.19
Metal	Arsenic, inorganic	mg/kg	0	1	0.019	0.019
Metal	Copper	mg/kg	0	1	0.213	0.213
Metal	Manganese	mg/kg	0	1	0.08	0.08
Metal	Mercury	mg/kg	0	1	0.071	0.071
Metal	Nickel	mg/kg	0	1	0.005	0.005
Metal	Thallium	mg/kg	0	1	0.003	0.003
Metal	Zinc	mg/kg	0	1	9.6	9.6
Pesticide	Dieldrin	ug/kg	0	1	1	1
PCB Aroclor	Total Aroclors	ug/kg			72	72
DDD	Total DDD	ug/kg			1.9	1.9
DDE	Total DDE	ug/kg			13	13
DDT	Total DDT	ug/kg			9.3	9.3
River Mile: 9, Organism: Smallmouth Bass, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	1	10.2	10.2
Metal	Arsenic, total	mg/kg	0	1	0.27	0.27
Metal	Arsenic, inorganic	mg/kg	0	1	0.027	0.027
Metal	Chromium	mg/kg	0	1	0.17	0.17
Metal	Copper	mg/kg	0	1	1.29	1.29
Metal	Lead	mg/kg	0	1	0.011	0.011
Metal	Manganese	mg/kg	0	1	2.65	2.65
Metal	Mercury	mg/kg	0	1	0.082	0.082
Metal	Selenium	mg/kg	0	1	0.3	0.3
Metal	Thallium	mg/kg	0	1	0.005	0.005
Metal	Zinc	mg/kg	0	1	14.5	14.5
PCB Aroclor	Total Aroclors	ug/kg			840	840
PCB Congener	Total Congeners	ug/kg			748	748
PCB Congener	Total Dioxin-like Congeners	ug/kg			71.6	71.6
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			677	677
Total Dioxin TEQ		ng/kg			3.19	3.19
Total PCB TEQ		ng/kg			20.4	20.4
Total TEQ		ng/kg			23.6	23.6
DDD	Total DDD	ug/kg			37.5	37.5
DDE	Total DDE	ug/kg			140	140

Table 4: Fishing Zone Exposure Point Concentrations for Carp

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Fishing Zone: 3 to 6, Organism: Carp, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	3	1.83	2.68
Metal	Arsenic, total	mg/kg	0	3	0.11	0.16
Metal	Arsenic, inorganic	mg/kg	0	3	0.011	0.016
Metal	Cadmium	mg/kg	0	3	0.004	0.005
Metal	Chromium	mg/kg	0	3	0.603	1.49
Metal	Copper	mg/kg	0	3	0.341	0.376
Metal	Lead	mg/kg	2	3	0.006	0.012
Metal	Manganese	mg/kg	0	3	0.317	0.379
Metal	Mercury	mg/kg	0	3	0.169	0.191
Metal	Nickel	mg/kg	1	3	0.033	0.087
Metal	Thallium	mg/kg	0	3	0.003	0.003
Metal	Zinc	mg/kg	0	3	23.7	29.8
Pesticide	Methoxychlor	ug/kg	2	3	3.87	7.2
PCB Aroclor	Total Aroclors	ug/kg			693	1060
DDD	Total DDD	ug/kg			31.5	38
DDE	Total DDE	ug/kg			107	135
DDT	Total DDT	ug/kg			25.4	63
Chlordanes	Total Chlordane	ug/kg			2.77	4.3
Endosulfan	Total Endosulfan	ug/kg			2.7	4.1
Fishing Zone: 3 to 6, Organism: Carp, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	3	106	134
Metal	Arsenic, total	mg/kg	0	3	0.197	0.22
Metal	Arsenic, inorganic	mg/kg	0	3	0.0197	0.022
Metal	Cadmium	mg/kg	0	3	0.075	0.108
Metal	Chromium	mg/kg	0	3	1.55	2.02
Metal	Copper	mg/kg	0	3	1.17	1.42
Metal	Lead	mg/kg	0	3	0.15	0.17
Metal	Manganese	mg/kg	0	3	7.10	8.53
Metal	Mercury	mg/kg	0	3	0.041	0.043
Metal	Nickel	mg/kg	0	3	0.985	1.37
Metal	Selenium	mg/kg	0	3	0.3	0.3
Metal	Silver	mg/kg	1	3	0.009	0.013
Metal	Thallium	mg/kg	0	3	0.004	0.005
Metal	Zinc	mg/kg	0	3	90.6	96.7
Pesticide	Methoxychlor	ug/kg	2	3	3	4.2
PCB Aroclor	Total Aroclors	ug/kg			2,465	6,865
PCB Congener	Total Congeners	ug/kg			2,982	8,154
PCB Congener	Total Dioxin-like Congeners	ug/kg			65.8	150.42
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			2,917	8,003
Total Dioxin TEQ		ng/kg			5.27	11.1
Total PCB TEQ		ng/kg			17.5	38.8
Total TEQ		ng/kg			22.8	49.9
DDD	Total DDD	ug/kg			86.4	171
DDE	Total DDE	ug/kg			149	260
DDT	Total DDT	ug/kg			20.1	47
Chlordanes	Total Chlordane	ug/kg			16.2	25.5
Fishing Zone: 6 to 9, Organism: Carp, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	3	1.67	1.97

Table 4: Fishing Zone Exposure Point Concentrations for Carp

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Arsenic, total	mg/kg	0	3	0.083	0.1
Metal	Arsenic, inorganic	mg/kg	0	3	0.0083	0.01
Metal	Cadmium	mg/kg	0	3	0.005	0.009
Metal	Copper	mg/kg	0	3	0.461	0.497
Metal	Lead	mg/kg	2	3	0.02	0.057
Metal	Manganese	mg/kg	0	3	0.239	0.318
Metal	Mercury	mg/kg	0	3	0.085	0.098
Metal	Nickel	mg/kg	0	3	0.04	0.057
Metal	Thallium	mg/kg	0	3	0.002	0.003
Metal	Zinc	mg/kg	0	3	23.0	24.6
SVOC	Hexachlorobenzene	ug/kg	1	3	49.1	140
PCB Aroclor	Total Aroclors	ug/kg			992	1,295
DDD	Total DDD	ug/kg			54.9	79.5
DDE	Total DDE	ug/kg			82.7	91.5

Fishing Zone: 6 to 9, Organism: Carp, Tissue: Whole Body

Metal	Aluminum	mg/kg	0	3	87.6	111
Metal	Arsenic, total	mg/kg	0	3	0.135	0.14
Metal	Arsenic, inorganic	mg/kg	0	3	0.0135	0.014
Metal	Cadmium	mg/kg	0	3	0.062	0.071
Metal	Chromium	mg/kg	0	3	0.635	0.86
Metal	Copper	mg/kg	0	3	1.16	1.28
Metal	Lead	mg/kg	0	3	0.152	0.202
Metal	Manganese	mg/kg	0	3	5.35	6.11
Metal	Mercury	mg/kg	0	3	0.038	0.047
Metal	Nickel	mg/kg	0	3	0.505	0.569
Metal	Selenium	mg/kg	0	3	0.333	0.4
Metal	Silver	mg/kg	1	3	0.011	0.017
Metal	Thallium	mg/kg	0	3	0.002	0.002
Metal	Zinc	mg/kg	0	3	108	112
PAH	2-Methylnaphthalene	ug/kg	2	3	23.5	38
PAH	Acenaphthene	ug/kg	1	3	52	75
PAH	Fluorene	ug/kg	2	3	28.5	53
PAH	Naphthalene	ug/kg	1	3	39.3	56
PCB Aroclor	Total Aroclors	ug/kg			990	1,190
PCB Congener	Total Congeners	ug/kg			858	1,383
PCB Congener	Total Dioxin-like Congeners	ug/kg			28.2	33.8
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			830	1,350
Total Dioxin TEQ		ng/kg			4.31	5.66
Total PCB TEQ		ng/kg			8.87	9.99
Total TEQ		ng/kg			13.2	15.7
DDD	Total DDD	ug/kg			51.2	64.8
DDE	Total DDE	ug/kg			122	145
Chlordanes	Total Chlordane	ug/kg			5.08	8.3
Endosulfan	Total Endosulfan	ug/kg			2.53	3.6

Table 5: Fishing Zone Exposure Point Concentrations for Brown Bullhead

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Fishing Zone: 3 to 6, Organism: Brown Bullhead, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	3	2.70	3.5
Metal	Arsenic, total	mg/kg	0	3	0.02	0.02
Metal	Arsenic, inorganic	mg/kg	0	3	0.002	0.002
Metal	Cadmium	mg/kg	0	3	0.001	0.001
Metal	Chromium	mg/kg	0	3	0.12	0.23
Metal	Copper	mg/kg	0	3	0.248	0.292
Metal	Manganese	mg/kg	0	3	0.097	0.107
Metal	Mercury	mg/kg	0	3	0.045	0.057
Metal	Nickel	mg/kg	0	3	0.028	0.055
Metal	Thallium	mg/kg	0	3	0.003	0.003
Metal	Zinc	mg/kg	0	3	5.58	6.49
PAH	Fluoranthene	ug/kg	2	3	71	110
PAH	Phenanthrene	ug/kg	1	3	99.3	140
Pesticide	Dieldrin	ug/kg	2	3	1.03	2.1
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	2	3	66.7	100
PCB Aroclor	Total Aroclors	ug/kg			48.7	56
DDD	Total DDD	ug/kg			3.57	4.3
DDE	Total DDE	ug/kg			12.0	15
DDT	Total DDT	ug/kg			6.8	7.7
Chlordanes	Total Chlordane	ug/kg			1.37	1.6
Fishing Zone: 3 to 6, Organism: Brown Bullhead, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	3	4.97	5.1
Metal	Arsenic, total	mg/kg	0	3	0.05	0.06
Metal	Arsenic, inorganic	mg/kg	0	3	0.005	0.006
Metal	Cadmium	mg/kg	0	3	0.014	0.014
Metal	Chromium	mg/kg	0	3	0.773	1.32
Metal	Copper	mg/kg	0	3	0.632	0.711
Metal	Lead	mg/kg	0	3	0.026	0.026
Metal	Manganese	mg/kg	0	3	3.69	4.54
Metal	Mercury	mg/kg	0	3	0.039	0.054
Metal	Nickel	mg/kg	0	3	0.275	0.321
Metal	Thallium	mg/kg	0	3	0.003	0.004
Metal	Zinc	mg/kg	0	3	13.9	14.9
PAH	Fluoranthene	ug/kg	2	3	24.3	40
PAH	Phenanthrene	ug/kg	2	3	31	60
Pesticide	Dieldrin	ug/kg	1	3	1.62	2.6
Pesticide	gamma-Hexachlorocyclohexane	ug/kg	1	3	1.13	1.5
Pesticide	Methoxychlor	ug/kg	2	3	0.7	1.1
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	2	3	933	2,700
PCB Aroclor	Total Aroclors	ug/kg			101	125
PCB Congener	Total Congeners	ug/kg			165	236
PCB Congener	Total Dioxin-like Congeners	ug/kg			16.3	27.8
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			149	208
Total Dioxin TEQ		ng/kg			1.51	1.66
Total PCB TEQ		ng/kg			4.96	8.31
Total TEQ		ng/kg			6.47	9.75
DDD	Total DDD	ug/kg			7.77	9
DDE	Total DDE	ug/kg			48	70

Table 5: Fishing Zone Exposure Point Concentrations for Brown Bullhead

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
DDT	Total DDT	ug/kg			23.2	38
Chlordanes	Total Chlordane	ug/kg			24.9	67
Endosulfan	Total Endosulfan	ug/kg			3.8	8.6
Fishing Zone: 6 to 9, Organism: Brown Bullhead, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	3	8.21	10.6
Metal	Arsenic, total	mg/kg	0	3	0.02	0.02
Metal	Arsenic, inorganic	mg/kg	0	3	0.002	0.002
Metal	Cadmium	mg/kg	1	3	0.001	0.001
Metal	Copper	mg/kg	0	3	0.253	0.256
Metal	Manganese	mg/kg	0	3	0.12	0.177
Metal	Mercury	mg/kg	0	3	0.076	0.094
Metal	Nickel	mg/kg	0	3	0.013	0.029
Metal	Thallium	mg/kg	0	3	0.001	0.001
Metal	Zinc	mg/kg	0	3	4.87	5.32
PCB Aroclor	Total Aroclors	ug/kg			678	1,336
DDD	Total DDD	ug/kg			5.83	7.35
DDE	Total DDE	ug/kg			15.0	26.5
DDT	Total DDT	ug/kg			7.88	11.5
Chlordanes	Total Chlordane	ug/kg			3.03	5.5
Fishing Zone: 6 to 9, Organism: Brown Bullhead, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	3	14.6	31.7
Metal	Arsenic, total	mg/kg	0	3	0.062	0.08
Metal	Arsenic, inorganic	mg/kg	0	3	0.0062	0.008
Metal	Cadmium	mg/kg	0	3	0.01	0.012
Metal	Chromium	mg/kg	0	3	0.687	1.08
Metal	Copper	mg/kg	0	3	0.747	0.798
Metal	Lead	mg/kg	1	3	0.025	0.044
Metal	Manganese	mg/kg	0	3	6.49	10.8
Metal	Mercury	mg/kg	0	3	0.034	0.046
Metal	Nickel	mg/kg	1	3	0.22	0.261
Metal	Selenium	mg/kg	1	3	0.25	0.3
Metal	Silver	mg/kg	2	3	0.002	0.004
Metal	Thallium	mg/kg	2	3	0.001	0.002
Metal	Zinc	mg/kg	0	3	14.3	15.6
Pesticide	gamma-Hexachlorocyclohexane	ug/kg	2	3	2.9	1.9
PCB Aroclor	Total Aroclors	ug/kg			729	1,719
PCB Congener	Total Congeners	ug/kg			857	1,950
PCB Congener	Total Dioxin-like Congeners	ug/kg			29.4	56.4
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			827	1,894
Total Dioxin TEQ		ng/kg			1.99	2.43
Total PCB TEQ		ng/kg			8.68	16.5
Total TEQ		ng/kg			10.7	18.9
DDD	Total DDD	ug/kg			17	25
DDE	Total DDE	ug/kg			46.8	58
DDT	Total DDT	ug/kg			32.6	58
Chlordanes	Total Chlordane	ug/kg			8.93	15.5

Table 6: Fishing Zone Exposure Point Concentrations for Black Crappie

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Fishing Zone: 3 to 6, Organism: Black Crappie, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	2	6.66	7.03
Metal	Arsenic, total	mg/kg	0	2	0.115	0.13
Metal	Arsenic, inorganic	mg/kg	0	2	0.0115	0.013
Metal	Cadmium	mg/kg	1	2	0.001	0.001
Metal	Chromium	mg/kg	0	2	0.21	0.28
Metal	Copper	mg/kg	0	2	0.175	0.184
Metal	Manganese	mg/kg	0	2	0.155	0.168
Metal	Mercury	mg/kg	0	2	0.077	0.086
Metal	Nickel	mg/kg	0	2	0.061	0.064
Metal	Thallium	mg/kg	0	2	0.006	0.007
Metal	Zinc	mg/kg	0	2	8.24	9.03
PCB Aroclor	Total Aroclors	ug/kg			22.4	22.6
DDD	Total DDD	ug/kg			2.1	2.4
DDE	Total DDE	ug/kg			6	6.5
DDT	Total DDT	ug/kg			1.5	1.5
Chlordanes	Total Chlordane	ug/kg			0.8	1.1
Fishing Zone: 3 to 6, Organism: Black Crappie, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	2	7.12	8.43
Metal	Arsenic, total	mg/kg	0	2	0.203	0.22
Metal	Arsenic, inorganic	mg/kg	0	2	0.0203	0.022
Metal	Cadmium	mg/kg	0	2	0.003	0.004
Metal	Copper	mg/kg	0	2	0.935	0.946
Metal	Lead	mg/kg	1	2	0.01	0.019
Metal	Manganese	mg/kg	0	2	3.16	3.41
Metal	Mercury	mg/kg	0	2	0.035	0.037
Metal	Nickel	mg/kg	0	2	0.334	0.338
Metal	Thallium	mg/kg	0	2	0.007	0.008
Metal	Zinc	mg/kg	0	2	14.9	15.5
Pesticide	Heptachlor	ug/kg	1	2	1.15	1.8
SVOC	Hexachlorobutadiene	ug/kg	0	2	1.35	1.4
PCB Aroclor	Total Aroclors	ug/kg			87.5	90
PCB Congener	Total Congeners	ug/kg			104	106
PCB Congener	Total Dioxin-like Congeners	ug/kg			8.63	8.63
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			95.7	97.1
Total Dioxin TEQ		ng/kg			1.24	1.33
Total PCB TEQ		ng/kg			2.73	2.93
Total TEQ		ng/kg			3.97	4.08
DDD	Total DDD	ug/kg			9.45	11
DDE	Total DDE	ug/kg			37.5	38
DDT	Total DDT	ug/kg			14.2	15
Chlordanes	Total Chlordane	ug/kg			9.05	9.2
Endosulfan	Total Endosulfan	ug/kg			0.8	1.1
Fishing Zone: 6 to 9, Organism: Black Crappie, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	2	3.81	4.57
Metal	Arsenic, total	mg/kg	0	2	0.165	0.18
Metal	Arsenic, inorganic	mg/kg	0	2	0.0165	0.018
Metal	Cadmium	mg/kg	1	2	0.001	0.001
Metal	Copper	mg/kg	0	2	0.181	0.184

Table 6: Fishing Zone Exposure Point Concentrations for Black Crappie

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Metal	Manganese	mg/kg	0	2	0.106	0.128
Metal	Mercury	mg/kg	0	2	0.096	0.101
Metal	Thallium	mg/kg	0	2	0.008	0.01
Metal	Zinc	mg/kg	0	2	8.22	8.69
PCB Aroclor	Total Aroclors	ug/kg			25.8	32
DDD	Total DDD	ug/kg			2.35	2.7
DDE	Total DDE	ug/kg			7.45	7.8
DDT	Total DDT	ug/kg			3.3	3.4
Fishing Zone: 6 to 9, Organism: Black Crappie, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	2	37.6	68.9
Metal	Arsenic, total	mg/kg	0	2	0.355	0.42
Metal	Arsenic, inorganic	mg/kg	0	2	0.0355	0.042
Metal	Cadmium	mg/kg	0	2	0.005	0.006
Metal	Copper	mg/kg	0	2	0.705	0.721
Metal	Manganese	mg/kg	0	2	3.08	3.36
Metal	Mercury	mg/kg	0	2	0.044	0.044
Metal	Nickel	mg/kg	0	2	0.352	0.357
Metal	Thallium	mg/kg	0	2	0.014	0.017
Metal	Zinc	mg/kg	0	2	16.0	16.8
Pesticide	alpha-Hexachlorocyclohexane	ug/kg	1	2	0.95	1.4
Pesticide	delta-Hexachlorocyclohexane	ug/kg	1	2	2.98	2.3
Pesticide	Dieldrin	ug/kg	1	2	4.75	2.5
SVOC	Hexachlorobenzene	ug/kg	0	2	6.9	8.1
SVOC	Hexachlorobutadiene	ug/kg	1	2	1.4	2.3
PCB Aroclor	Total Aroclors	ug/kg			180	250
PCB Congener	Total Congeners	ug/kg			224	301
PCB Congener	Total Dioxin-like Congeners	ug/kg			15.8	21.0
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			208	280
Total Dioxin TEQ						
ng/kg						
Total PCB TEQ						
ng/kg						
Total TEQ						
ng/kg						
DDD	Total DDD	ug/kg			14.8	18.5
DDE	Total DDE	ug/kg			73.8	80.5
DDT	Total DDT	ug/kg			14.1	21.6
Chlordanes	Total Chlordane	ug/kg			3.95	5.1

Table 7: Site-wide Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Organism: Crayfish, Tissue: Whole Body									
Metal	Aluminum	mg/kg	0	27	94.0	203	106	gamma	approximate gamma
Metal	Antimony	mg/kg	11	27	0.008	0.02	0.01	normal	Student's t
Metal	Arsenic, total	mg/kg	0	27	0.353	0.5	0.37	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	27	0.0353	0.05	0.037	normal	Student's t
Metal	Cadmium	mg/kg	0	27	0.018	0.036	0.020	normal	Student's t
Metal	Chromium	mg/kg	0	27	0.489	0.9	0.59	gamma	approximate gamma
Metal	Copper	mg/kg	0	27	14.1	17.6	14.8	normal	Student's t
Metal	Lead	mg/kg	0	27	0.153	1.3	0.38	non-parametric	95% Chebyshev (Mean, Sd) UCL
Metal	Manganese	mg/kg	0	27	138	213	151	normal	Student's t
Metal	Mercury	mg/kg	0	27	0.028	0.041	0.030	normal	Student's t
Metal	Nickel	mg/kg	15	27	0.383	0.83	0.45	gamma	approximate gamma
Metal	Silver	mg/kg	4	27	0.029	0.047	0.033	normal	Student's t
Metal	Thallium	mg/kg	0	27	0.003	0.008	0.004	normal	Student's t
Metal	Zinc	mg/kg	0	27	16.7	20.3	17.3	normal	Student's t
PAH	Benz(a)anthracene	ug/kg	26	27	2.01	80	NA	NA	Less than 5 detects
PAH	Chrysene	ug/kg	26	27	2.16	87	NA	NA	Less than 5 detects
PAH	Fluoranthene	ug/kg	24	27	10.2	130	NA	NA	Less than 5 detects
PAH	Phenanthrene	ug/kg	26	27	2.37	97	NA	NA	Less than 5 detects
PAH	Pyrene	ug/kg	25	27	4.02	83	NA	NA	Less than 5 detects
Pesticide	Endrin	ug/kg	22	27	0.342	2.8	2.3	normal	Student's t
Phenol	4-Methylphenol	ug/kg	25	27	9.29	190	NA	NA	Less than 5 detects
Phenol	Pentachlorophenol	ug/kg	26	27	5.42	130	NA	NA	Less than 5 detects
Phenol	Phenol	ug/kg	26	27	21.7	520	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			29.8	280	121	lognormal	H-UCL
PCB Congener	Total Congeners	ug/kg			65.6	207	111	gamma	approximate gamma
PCB Congener	Total Dioxin-like Congeners	ug/kg			6.03	15.1			
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			59.5	193	103	gamma	approximate gamma
	Total Dioxin TEQ	ng/kg			3.41	22.7	13.9	non-parametric	95% Chebyshev (Mean, Sd) UCL
	Total PCB TEQ	ng/kg			1.92	4.55	3.23	gamma	approximate gamma
	Total TEQ	ng/kg			5.33	23.8	15.6	non-parametric	95% Chebyshev (Mean, Sd) UCL

Table 7: Site-wide Exposure Point Concentrations for Crayfish

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
DDD	Total DDD	ug/kg			1.33	21.3	18.7	normal	Student's t
DDE	Total DDE	ug/kg			6.78	51	15.5	non-parametric	95% Chebyshev (Mean, Sd) UCL
DDT	Total DDT	ug/kg			4.13	17.5	7.35	gamma	approximate gamma
Chlordanes	Total Chlordane	ug/kg			0.288	1.9	1.7	normal	Student's t
Endosulfan	Total Endosulfan	ug/kg			0.767	3.1	2.0	normal	Student's t

Table 8: Site-wide Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Organism: Smallmouth Bass, Tissue: Fillet									
Metal	Aluminum	mg/kg	0	5	4.09	7.15	5.78	normal	Student's t
Metal	Arsenic, total	mg/kg	0	5	0.21	0.28	0.25	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	5	0.021	0.028	0.025	normal	Student's t
Metal	Cadmium	mg/kg	3	5	0	0.001	NA	NA	Less than 5 detects
Metal	Copper	mg/kg	0	5	0.541	1.12	0.97	normal	Student's t
Metal	Lead	mg/kg	4	5	0.002	0.011	NA	NA	Less than 5 detects
Metal	Manganese	mg/kg	0	5	0.084	0.094	0.091	normal	Student's t
Metal	Mercury	mg/kg	0	5	0.095	0.129	0.119	normal	Student's t
Metal	Nickel	mg/kg	0	5	0.073	0.224	0.167	normal	Student's t
Metal	Thallium	mg/kg	0	5	0.004	0.01	NA	non-parametric	Recommended UCL exceeds maximum
Metal	Zinc	mg/kg	0	5	9.11	10.9	10.2	normal	Student's t
Pesticide	beta-Hexachlorocyclohexane	ug/kg	4	5	0.9	4.5	NA	NA	Less than 5 detects
Pesticide	Dieldrin	ug/kg	4	5	1.14	3.3	NA	NA	Less than 5 detects
Pesticide	Endrin aldehyde	ug/kg	3	5	0.7	2	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			62	93	83	normal	Student's t
DDD	Total DDD	ug/kg			3.86	6.4	5.5	normal	Student's t
DDE	Total DDE	ug/kg			16	25	21	normal	Student's t
DDT	Total DDT	ug/kg			10.9	15.2	13.8	normal	Student's t
Chlordanes	Total Chlordane	ug/kg			1.78	4.1	NA	NA	Less than 5 detects
Organism: Smallmouth Bass, Tissue: Whole Body									
Metal	Aluminum	mg/kg	0	14	5.38	11	7.0	normal	Student's t
Metal	Antimony	mg/kg	12	14	0	0.001	NA	NA	Less than 5 detects
Metal	Arsenic, total	mg/kg	0	14	0.272	0.39	0.32	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	14	0.0272	0.039	0.032	normal	Student's t
Metal	Cadmium	mg/kg	4	14	0.006	0.024	0.021	gamma	approximate gamma
Metal	Chromium	mg/kg	2	14	0.388	1.14	0.611	normal	Student's t
Metal	Copper	mg/kg	0	14	0.665	1.29	0.868	normal	Student's t
Metal	Lead	mg/kg	0	14	0.028	0.303	0.060	lognormal	95% Chebyshev (MVUE) UCL
Metal	Manganese	mg/kg	0	14	1.26	2.65	1.70	normal	Student's t
Metal	Mercury	mg/kg	0	14	0.087	0.114	0.098	normal	Student's t
Metal	Nickel	mg/kg	7	14	0.064	0.2	0.15	normal	Student's t
Metal	Selenium	mg/kg	11	14	0.073	0.4	NA	NA	Less than 5 detects

Table 8: Site-wide Exposure Point Concentrations for Smallmouth Bass

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Metal	Thallium	mg/kg	0	14	0.004	0.009	0.006	normal	Student's t
Metal	Zinc	mg/kg	0	14	14.9	16.3	7.0	normal	Student's t
PAH	2-Methylnaphthalene	ug/kg	10	14	9.38	59	NA	NA	Less than 5 detects
PAH	Acenaphthene	ug/kg	10	14	13.7	95	NA	NA	Less than 5 detects
PAH	Fluoranthene	ug/kg	13	14	2.77	36	NA	NA	Less than 5 detects
PAH	Fluorene	ug/kg	11	14	9.31	69	NA	NA	Less than 5 detects
PAH	Naphthalene	ug/kg	12	14	6.40	86	NA	NA	Less than 5 detects
PAH	Phenanthrene	ug/kg	12	14	6.10	85	NA	NA	Less than 5 detects
PAH	Pyrene	ug/kg	13	14	2.90	39	NA	NA	Less than 5 detects
Pesticide	Dieldrin	ug/kg	13	14	0.913	7.3	NA	NA	Less than 5 detects
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	12	14	4,973	87,000	NA	NA	Less than 5 detects
Phthalate	Di-n-octyl phthalate	ug/kg	11	14	250	2,100	NA	NA	Less than 5 detects
SVOC	Dibenzofuran	ug/kg	12	14	4.73	52	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			914	2,933	1,634	gamma	approximate gamma
PCB Congener	Total Congeners	ug/kg			911	3,025	1,595	gamma	approximate gamma
PCB Congener	Total Dioxin-like Congeners	ug/kg			54.2	84.8			
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			857	2,941	1,528	gamma	approximate gamma
Total Dioxin TEQ		ng/kg			3.36	8.60	5.11	gamma	approximate gamma
Total PCB TEQ		ng/kg			15.2	24.7	19.3	normal	Student's t
Total TEQ		ng/kg			18.5	28.4	22.7	normal	Student's t
DDD	Total DDD	ug/kg			36.9	89.8	55.6	gamma	approximate gamma
DDE	Total DDE	ug/kg			129	177	150	normal	Student's t
DDT	Total DDT	ug/kg			26.6	104	70.4	gamma	approximate gamma
Chlordanes	Total Chlordane	ug/kg			0.542	4.33	NA	NA	Less than 5 detects
Endosulfan	Total Endosulfan	ug/kg			0.975	7.8	NA	NA	Less than 5 detects

Table 9: Site-wide Exposure Point Concentrations for Carp

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Organism: Carp, Tissue: Fillet									
Metal	Aluminum	mg/kg	0	6	1.75	2.68	2.22	normal	Student's t
Metal	Arsenic, total	mg/kg	0	6	0.097	0.16	0.13	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	6	0.0097	0.016	0.013	normal	Student's t
Metal	Cadmium	mg/kg	0	6	0.004	0.009	0.006	normal	Student's t
Metal	Chromium	mg/kg	3	6	0.319	1.49	NA	NA	Less than 5 detects
Metal	Copper	mg/kg	0	6	0.401	0.497	0.460	normal	Student's t
Metal	Lead	mg/kg	4	6	0.013	0.057	NA	NA	Less than 5 detects
Metal	Manganese	mg/kg	0	6	0.278	0.379	0.343	normal	Student's t
Metal	Mercury	mg/kg	0	6	0.127	0.191	0.169	normal	Student's t
Metal	Nickel	mg/kg	1	6	0.037	0.087	0.063	normal	Student's t
Metal	Thallium	mg/kg	0	6	0.002	0.003	0.003	normal	Student's t
Metal	Zinc	mg/kg	0	6	23.3	29.8	26.9	normal	Student's t
Pesticide	Methoxychlor	ug/kg	5	6	3.07	7.2	NA	NA	Less than 5 detects
SVOC	Hexachlorobenzene	ug/kg	4	6	25.6	140	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			843	1,295	1,197	normal	Student's t
DDD	Total DDD	ug/kg			45.4	79.5	61.2	normal	Student's t
DDE	Total DDE	ug/kg			94.8	135	112	normal	Student's t
DDT	Total DDT	ug/kg			16	63	57.0	non-parametric	95% Chebyshev (Mean, Sd) UCL
Chlordanes	Total Chlordane	ug/kg			4.2	10	8.1	gamma	Approximate Gamma UCL
Endosulfan	Total Endosulfan	ug/kg			4.17	10	8.07	gamma	Approximate Gamma UCL
Organism: Carp, Tissue: Whole Body									
Metal	Aluminum	mg/kg	0	6	96.8	134	120	normal	Student's t
Metal	Arsenic, total	mg/kg	0	6	0.166	0.22	0.20	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	6	0.0166	0.022	0.020	normal	Student's t
Metal	Cadmium	mg/kg	0	6	0.069	0.108	0.086	normal	Student's t
Metal	Chromium	mg/kg	0	6	1.09	2.02	1.58	normal	Student's t
Metal	Copper	mg/kg	0	6	1.16	1.42	1.29	normal	Student's t
Metal	Lead	mg/kg	0	6	0.151	0.202	0.176	normal	Student's t
Metal	Manganese	mg/kg	0	6	6.22	8.53	7.57	normal	Student's t
Metal	Mercury	mg/kg	0	6	0.04	0.047	0.04	normal	Student's t
Metal	Nickel	mg/kg	0	6	0.745	1.37	1.03	normal	Student's t

Table 9: Site-wide Exposure Point Concentrations for Carp

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Metal	Selenium	mg/kg	0	6	0.317	0.4	0.35	non-parametric	Mod-t UCL (Adjusted for skewness)
Metal	Silver	mg/kg	2	6	0.01	0.017	NA		Less than 5 detects
Metal	Thallium	mg/kg	0	6	0.003	0.005	0.004	normal	Student's t
Metal	Zinc	mg/kg	0	6	99.3	112	108	normal	Student's t
PAH	2-Methylnaphthalene	ug/kg	5	6	19.8	38	NA	NA	Less than 5 detects
PAH	Acenaphthene	ug/kg	4	6	34.1	75	NA	NA	Less than 5 detects
PAH	Fluorene	ug/kg	5	6	22.3	53	NA	NA	Less than 5 detects
PAH	Naphthalene	ug/kg	4	6	27.8	56	NA	NA	Less than 5 detects
Pesticide	Methoxychlor	ug/kg	5	6	2.63	4.2	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			1,728	6,865	5,917	gamma	Approximate Gamma UCL
PCB Congener	Total Congeners	ug/kg			1,920	8,154	4,714	lognormal	95% Chebyshev (MVUE) UCL
PCB Congener	Total Dioxin-like Congeners	ug/kg			47.0	150			
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			1,873	8,003	4,617	lognormal	95% Chebyshev (MVUE) UCL
Total Dioxin TEQ		ng/kg			4.79	11.1	7.52	normal	Student's t
Total PCB TEQ		ng/kg			13.2	38.8	35.9	lognormal	H-UCL
Total TEQ		ng/kg			18.0	49.9	36.1	gamma	Approximate Gamma UCL
DDD	Total DDD	ug/kg			68.8	171	130	gamma	Approximate Gamma UCL
DDE	Total DDE	ug/kg			135	260	189	normal	Student's t
DDT	Total DDT	ug/kg			13.3	47	43	lognormal	95% Chebyshev (MVUE) UCL
Chlordanes	Total Chlordane	ug/kg			14.3	25.5	19.7	normal	Student's t
Endosulfan	Total Endosulfan	ug/kg			3.12	10	9.1	gamma	Approximate Gamma UCL

Table 10: Site-wide Exposure Point Concentrations for Brown Bullhead

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Organism: Brown Bullhead, Tissue: Fillet									
Metal	Aluminum	mg/kg	0	6	5.46	10.6	8.26	normal	Student's t
Metal	Arsenic, total	mg/kg	0	6	0.02	0.02	NA	constant	NA
Metal	Arsenic, inorganic	mg/kg	0	6	0.002	0.002	NA	constant	NA
Metal	Cadmium	mg/kg	1	6	0.001	0.001	NA	constant	NA
Metal	Chromium	mg/kg	3	6	0.073	0.23	NA	NA	Less than 5 detects
Metal	Copper	mg/kg	0	6	0.251	0.292	0.274	normal	Student's t
Metal	Manganese	mg/kg	0	6	0.109	0.177	0.141	gamma	approximate gamma
Metal	Mercury	mg/kg	0	6	0.061	0.094	0.078	normal	Student's t
Metal	Nickel	mg/kg	0	6	0.021	0.055	0.036	normal	Student's t
									Recommended UCL exceeds maximum
Metal	Thallium	mg/kg	0	6	0.002	0.003	NA	gamma	
Metal	Zinc	mg/kg	0	6	5.23	6.49	5.92	normal	Student's t
PAH	Fluoranthene	ug/kg	5	6	43.8	110	NA	NA	Less than 5 detects
PAH	Phenanthrene	ug/kg	4	6	57.9	140	NA	NA	Less than 5 detects
Pesticide	Dieldrin	ug/kg	5	6	2.1	2.1	NA	NA	Less than 5 detects
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	5	6	68.3	100	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			363	1,336	1,129	lognormal	95% Chebyshev (MVUE) UCL
DDD	Total DDD	ug/kg			4.7	7.35	7.11	gamma	approximate gamma
DDE	Total DDE	ug/kg			13.5	26.5	19.2	normal	Student's t
DDT	Total DDT	ug/kg			7.34	11.5	9.15	normal	Student's t
Chlordanes	Total Chlordane	ug/kg			2.2	5.5	4.0	gamma	approximate gamma
Organism: Brown Bullhead, Tissue: Whole Body									
Metal	Aluminum	mg/kg	0	6	9.8	31.7	29.0	non-parametric	95% Chebyshev (Mean, Sd) UCL
Metal	Arsenic, total	mg/kg	0	6	0.056	0.08	0.07	normal	Student's t
Metal	Arsenic, inorganic	mg/kg	0	6	0.0056	0.008	0.007	normal	Student's t
Metal	Cadmium	mg/kg	0	6	0.012	0.014	0.014	normal	Student's t
Metal	Chromium	mg/kg	0	6	0.73	1.32	1.04	normal	Student's t
Metal	Copper	mg/kg	0	6	0.69	0.798	0.762	normal	Student's t
Metal	Lead	mg/kg	1	6	0.025	0.044	0.035	normal	Student's t
Metal	Manganese	mg/kg	0	6	5.09	10.8	8.2	gamma	approximate gamma
Metal	Mercury	mg/kg	0	6	0.037	0.054	0.046	normal	Student's t
Metal	Nickel	mg/kg	1	6	0.248	0.321	0.294	normal	Student's t
Metal	Selenium	mg/kg	4	6	0.175	0.3	NA	NA	Less than 5 detects

Table 10: Site-wide Exposure Point Concentrations for Brown Bullhead

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max	95% UCL	Distribution	95% UCL Method
Metal	Silver	mg/kg	5	6	0.002	0.004	NA	NA	Less than 5 detects
Metal	Thallium	mg/kg	2	6	0.002	0.004	NA	NA	Less than 5 detects
Metal	Zinc	mg/kg	0	6	14.1	15.6	15.0	normal	Student's t
PAH	Fluoranthene	ug/kg	5	6	20.4	40	NA	NA	Less than 5 detects
PAH	Phenanthrene	ug/kg	5	6	23.8	60	NA	NA	Less than 5 detects
Pesticide	Dieldrin	ug/kg	4	6	2.48	2.6	NA	NA	Less than 5 detects
Pesticide	gamma-Hexachlorocyclohexane	ug/kg	3	6	2.02	1.9	NA	NA	Less than 5 detects
Pesticide	Methoxychlor	ug/kg	5	6	1.18	1.1	NA	NA	Less than 5 detects
Phthalate	Bis(2-ethylhexyl) phthalate	ug/kg	5	6	491	2,700	NA	NA	Less than 5 detects
PCB Aroclor	Total Aroclors	ug/kg			415	1,719	1,438	gamma	approximate gamma
PCB Congener	Total Congeners	ug/kg			511	1,950	1,558	gamma	approximate gamma
PCB Congener	Total Dioxin-like Congeners	ug/kg			22.8	56.4			
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			488	1,894	1,523	gamma	approximate gamma
Total Dioxin TEQ		ng/kg			1.75	2.43	2.06	normal	Student's t
Total PCB TEQ		ng/kg			6.82	16.5	11.1	normal	Student's t
Total TEQ		ng/kg			8.57	18.9	13.1	normal	Student's t
DDD	Total DDD	ug/kg			12.9	25	18	normal	Student's t
DDE	Total DDE	ug/kg			47.4	70	60	normal	Student's t
DDT	Total DDT	ug/kg			27.9	58	44	normal	Student's t
Chlordanes	Total Chlordane	ug/kg			18.0	67	58	gamma	approximate gamma
Endosulfan	Total Endosulfan	ug/kg			3.9	8.6	6.6	normal	Student's t

Table 11: Site-wide Exposure Point Concentrations for Black Crappie

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Organism: Black Crappie, Tissue: Fillet						
Metal	Aluminum	mg/kg	0	4	5.23	7.03
Metal	Arsenic, total	mg/kg	0	4	0.14	0.18
Metal	Arsenic, inorganic	mg/kg	0	4	0.014	0.018
Metal	Cadmium	mg/kg	2	4	0.001	0.001
Metal	Chromium	mg/kg	2	4	0.12	0.28
Metal	Copper	mg/kg	0	4	0.178	0.184
Metal	Manganese	mg/kg	0	4	0.13	0.168
Metal	Mercury	mg/kg	0	4	0.086	0.101
Metal	Nickel	mg/kg	2	4	0.031	0.064
Metal	Thallium	mg/kg	0	4	0.007	0.01
Metal	Zinc	mg/kg	0	4	8.23	9.03
PCB Aroclor	Total Aroclor	ug/kg			24.1	32
DDD	Total DDD	ug/kg			2.23	2.7
DDE	Total DDE	ug/kg			6.73	7.8
DDT	Total DDT	ug/kg			2.65	3.4
Chlordanes	Total Chlordane	ug/kg			0.65	1.1
Organism: Black Crappie, Tissue: Whole Body						
Metal	Aluminum	mg/kg	0	4	22.4	68.9
Metal	Arsenic, total	mg/kg	0	4	0.279	0.42
Metal	Arsenic, inorganic	mg/kg	0	4	0.0279	0.042
Metal	Cadmium	mg/kg	0	4	0.004	0.006
Metal	Copper	mg/kg	0	4	0.82	0.946
Metal	Lead	mg/kg	3	4	0.007	0.019
Metal	Manganese	mg/kg	0	4	3.12	3.41
Metal	Mercury	mg/kg	0	4	0.039	0.044
Metal	Nickel	mg/kg	0	4	0.343	0.357
Metal	Thallium	mg/kg	0	4	0.011	0.017
Metal	Zinc	mg/kg	0	4	15.4	16.8

Table 11: Site-wide Exposure Point Concentrations for Black Crappie

Chemical Group	Chemical	Unit	Non-Detects	Total Samples	Arithmetic Mean	Max
Pesticide	alpha-Hexachlorocyclohexane	ug/kg	3	4	0.725	1.4
Pesticide	delta-Hexachlorocyclohexane	ug/kg	3	4	1.74	2.3
Pesticide	Dieldrin	ug/kg	3	4	2.84	2.5
Pesticide	Heptachlor	ug/kg	3	4	0.863	1.8
SVOC	Hexachlorobenzene	ug/kg	2	4	3.71	8.1
SVOC	Hexachlorobutadiene	ug/kg	1	4	1.38	2.3
PCB Aroclor	Total Aroclors	ug/kg			134	250
PCB Congener	Total Congeners	ug/kg			164	301
PCB Congener	Total Dioxin-like Congeners	ug/kg			12.2	21.0
PCB Congener	Total Congeners Without Dioxin-like PCBs	ug/kg			152	280
Total Dioxin TEQ		ng/kg			1.24	1.33
Total PCB TEQ		ng/kg			3.37	5.26
Total TEQ		ng/kg			4.61	6.52
DDD	Total DDD	ug/kg			12.1	18.5
DDE	Total DDE	ug/kg			55.6	80.5
DDT	Total DDT	ug/kg			14.1	21.6
Chlordanes	Total Chlordane	ug/kg			7.5	9.7
Endosulfan	Total Endosulfan	ug/kg			2.03	6